# Nikkormat FT$_N$

(31F3B)

## REPAIR MANUAL
## (REVISED)-1

NIPPON KOGAKU K.K.

Tokyo, Japan

(70. 10. d) H

C O N T E N T S


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NOTE:

1. (a) Parts (or subassemblies) numbers 31FB - .. :

   For the parts (or subassemblies) commonly used for Nikkormat FTN, FT and FS.

   (b) Parts (or subassemblies) numbers 31F2B - T.. :

   For the parts (or subassemblies) exclusively used for Nikkormat FTN and FT.

   (c) Parts (or subassemblies) numbers 31F3B - .. :

   For the parts (or subassemblies) exclusively used for Nikkormat FTN.

2. Marks in the "Term of Sale" column of the parts list are:

   ○ ..... Can be supplied individually

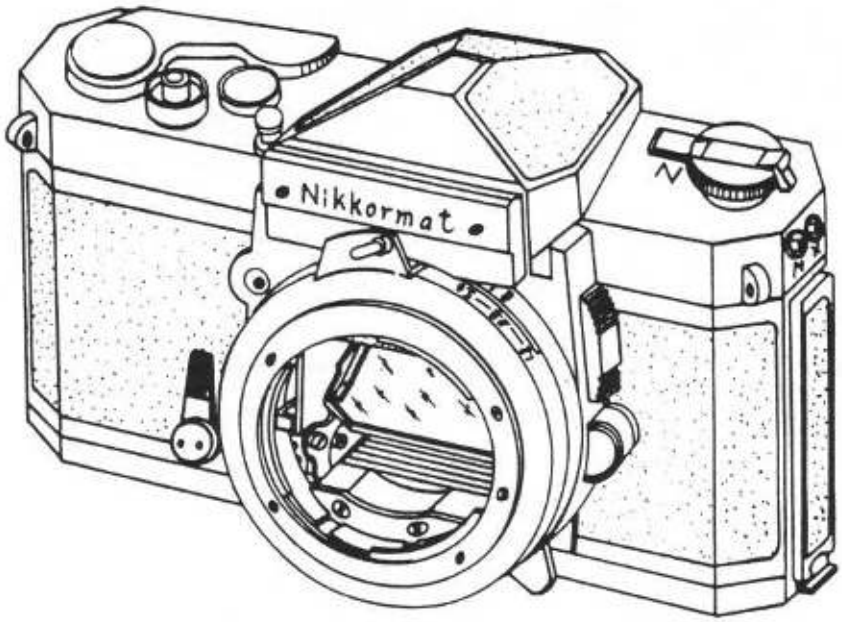
   △ ..... Not supplied individually but only as subassembly

   ○△..... Supplied either as part or subassembly

   × ..... Not considered as repair part

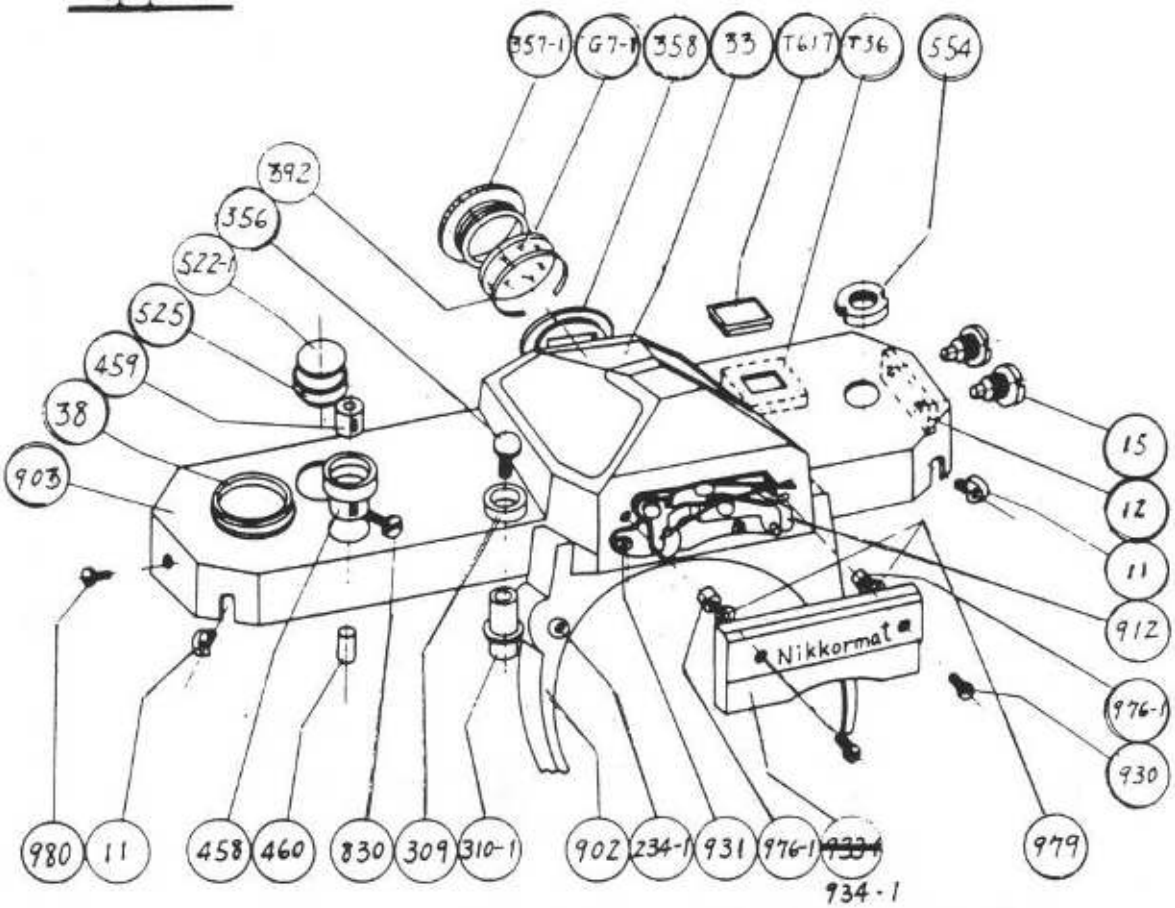
   ▢..... Delivered as a product from the Sales Department (i.e., not supplied as repair part)

Nikkormat FTN

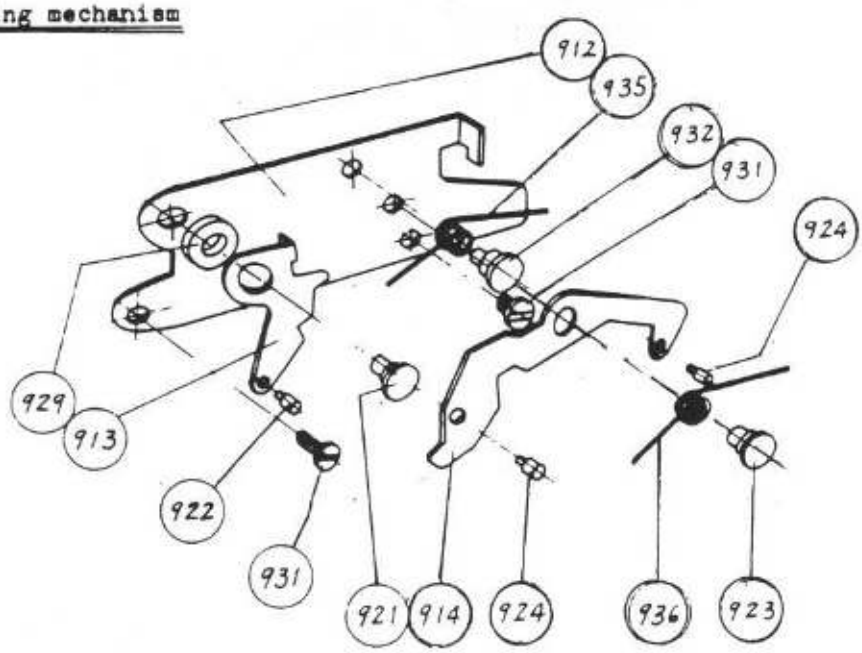



FTN - Fig. 1

Top plate

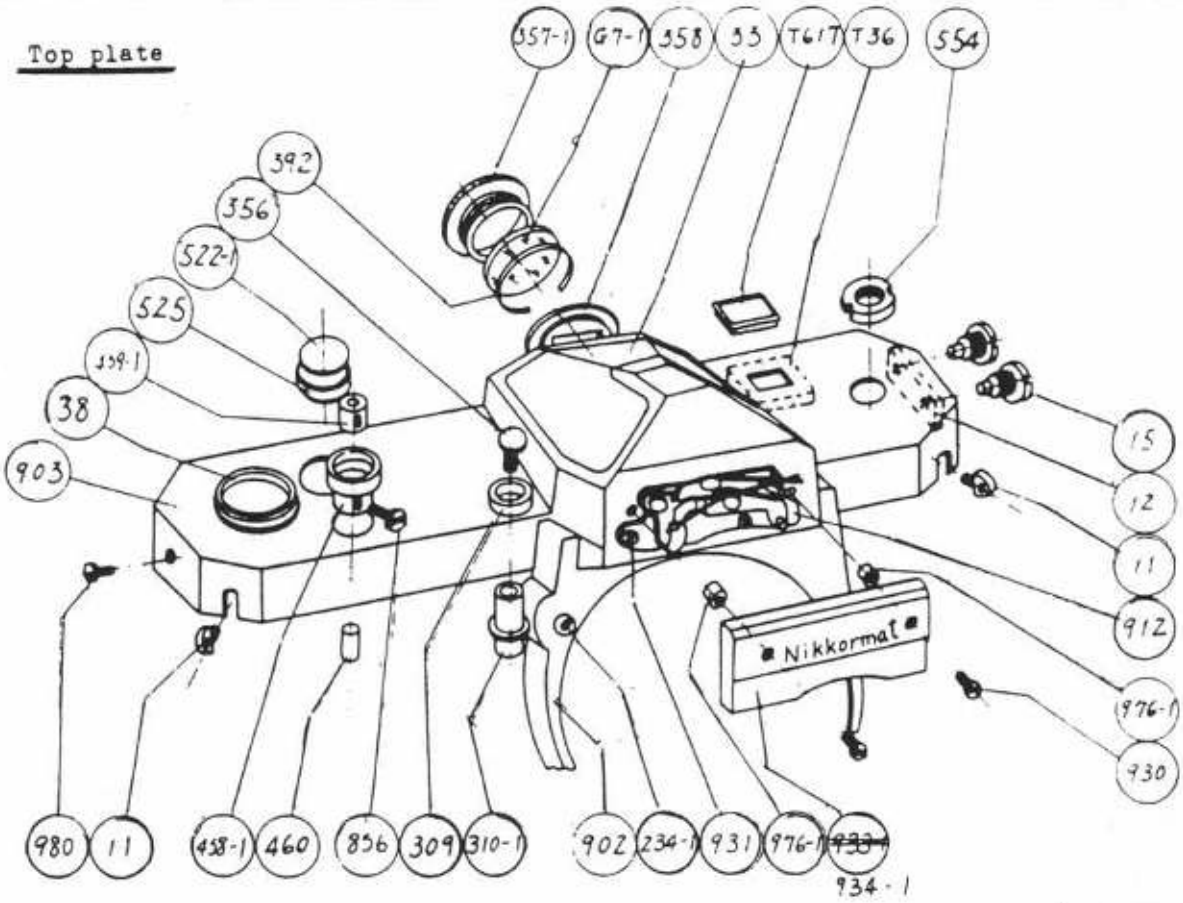



Releasing mechanism

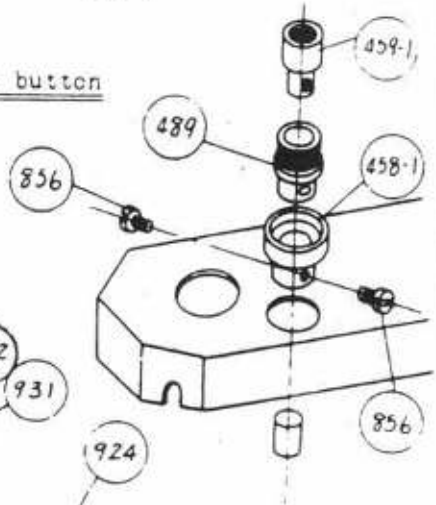



FTN - Fig. 2

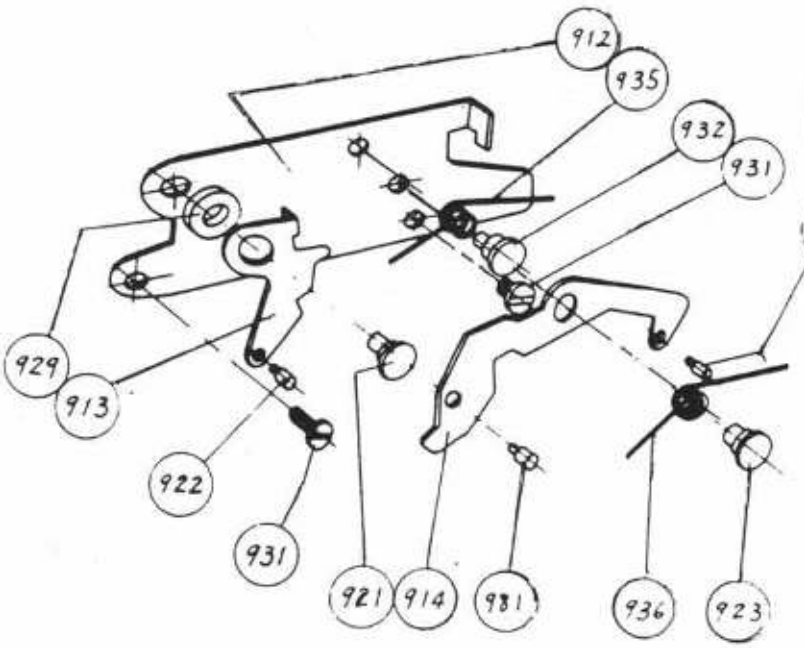
Top plate



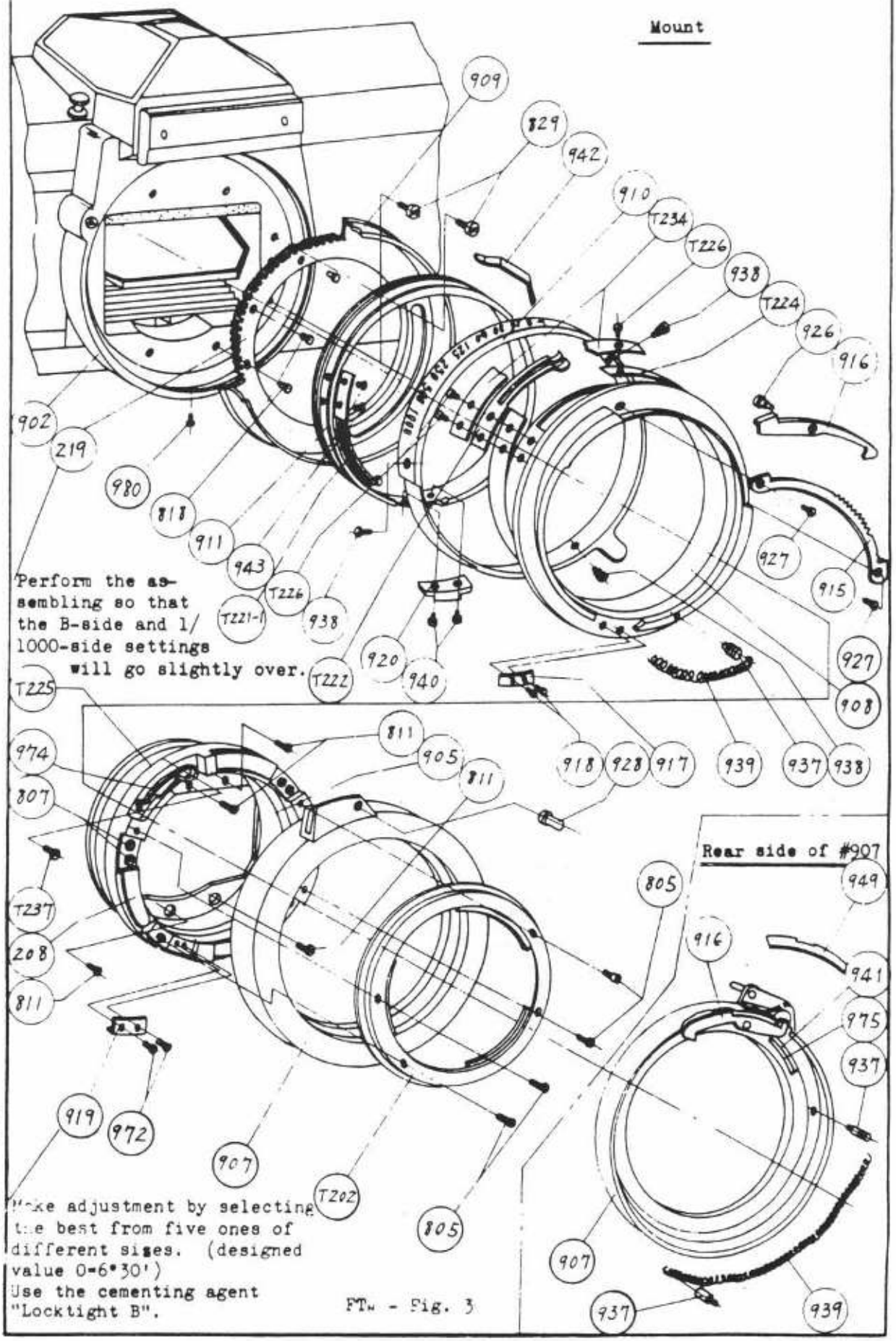

Release button



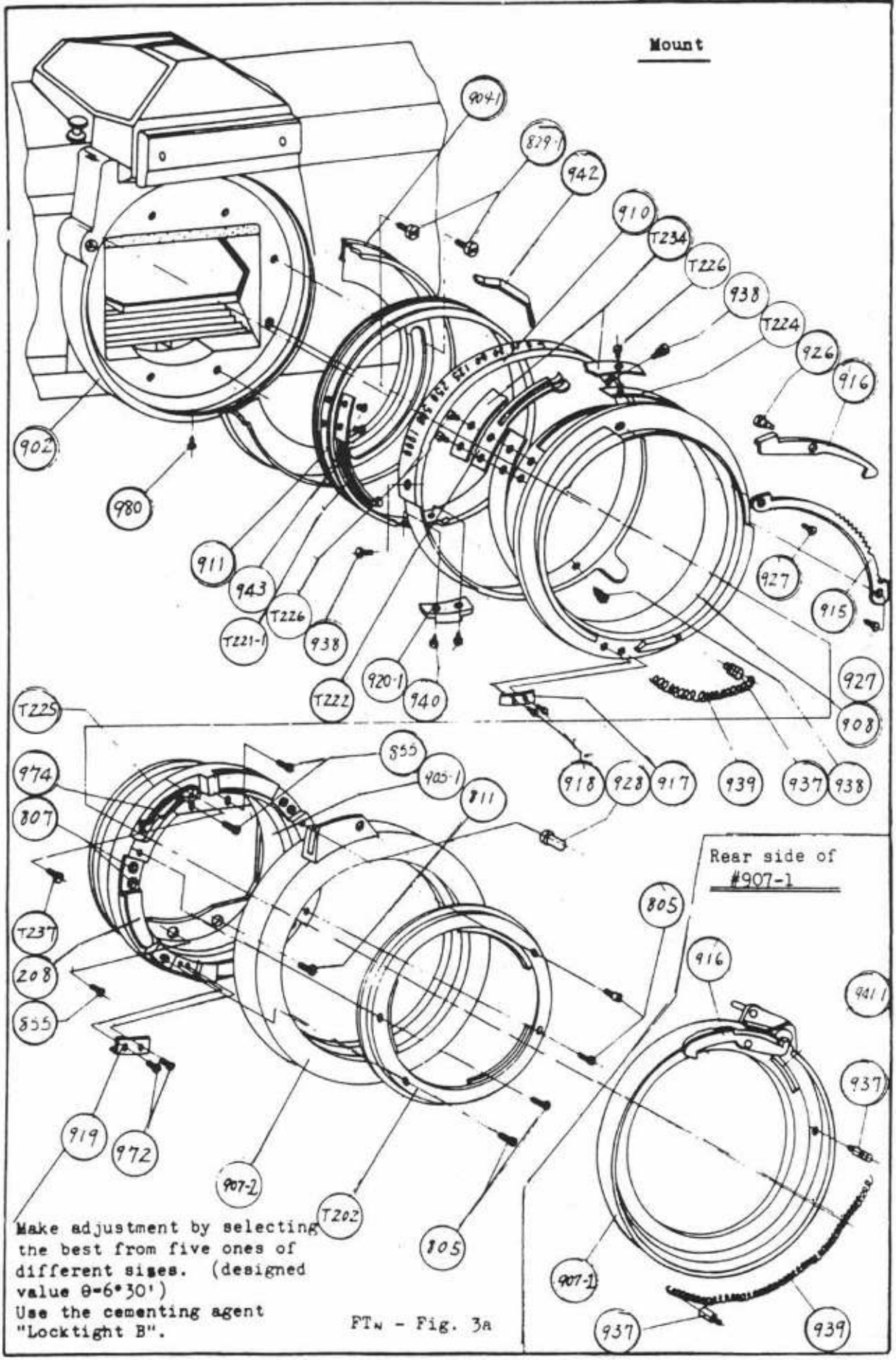

Releasing mechanism




FTm - Fig. 2a


Mount
909
929
942
910
T234
T226
938
T224
926
916
902
219
980
818
911
943
T226
T221-1
938
T222
920
940
927
915
927
908
Perform the assembling so that the B-side and 1/1000-side settings will go slightly over.
T225
974
807
811
905
811
918
928
917
939
937
938
Rear side of #907
949
805
916
941
975
937
T237
208
811
919
972
907
T202
805
907
937
939
Make adjustment by selecting the best from five ones of different sizes. (designed value 0-6°30')
Use the cementing agent "Locktight B".

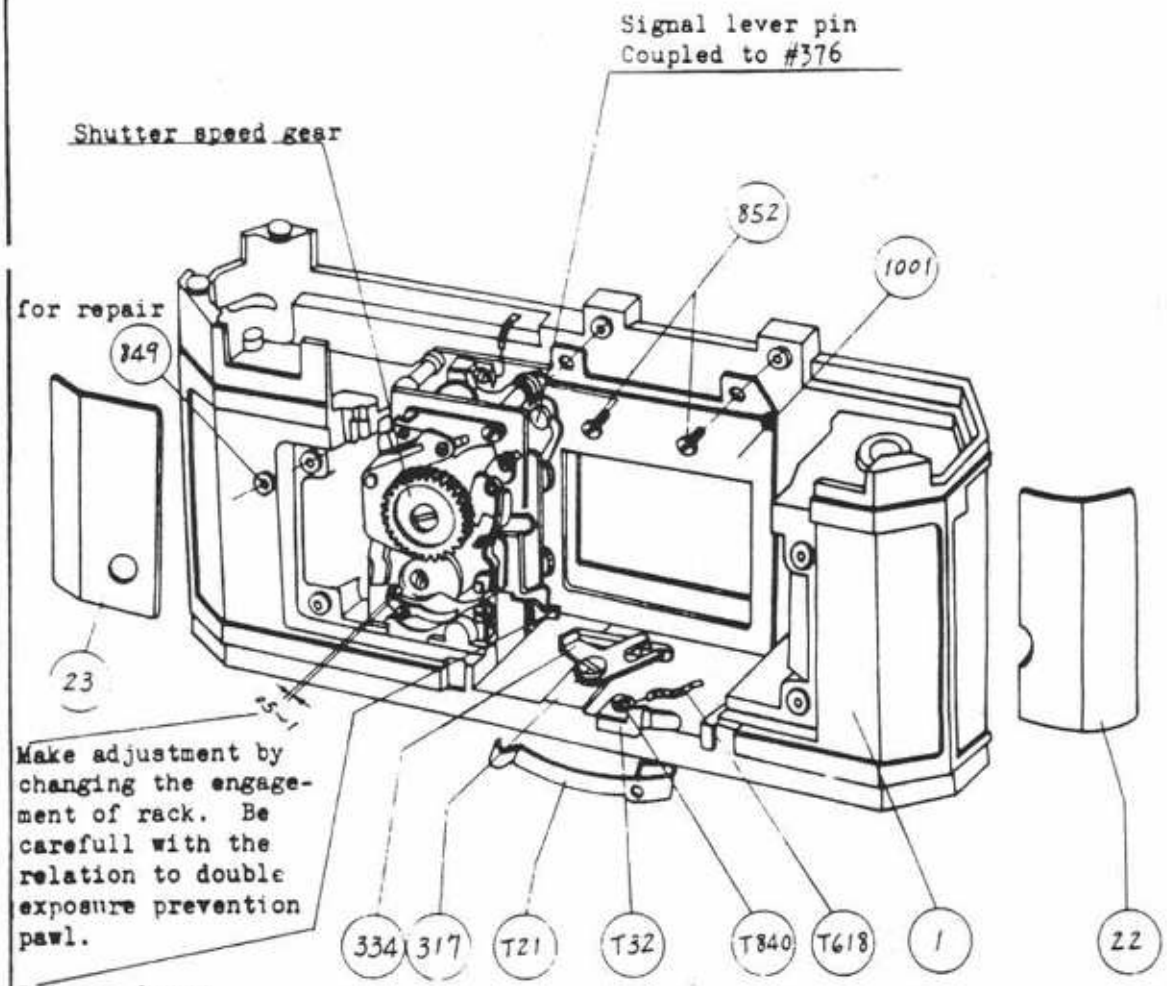
FT- Fig. 3

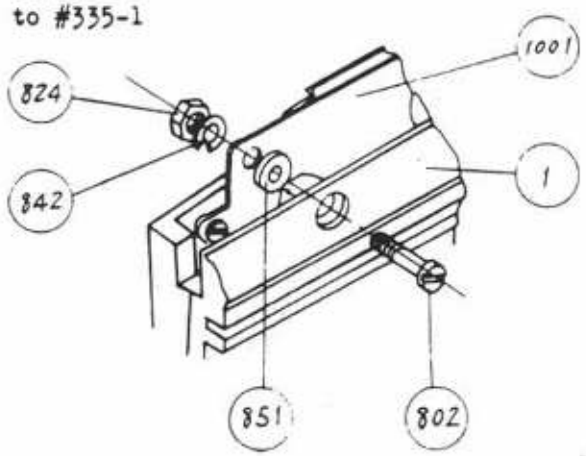



Make adjustment by selecting the best from five ones of different sizes. (designed value θ=6°30')
Use the cementing agent "Locktight B".

FTw - Fig. 3a

## Attaching the shutter

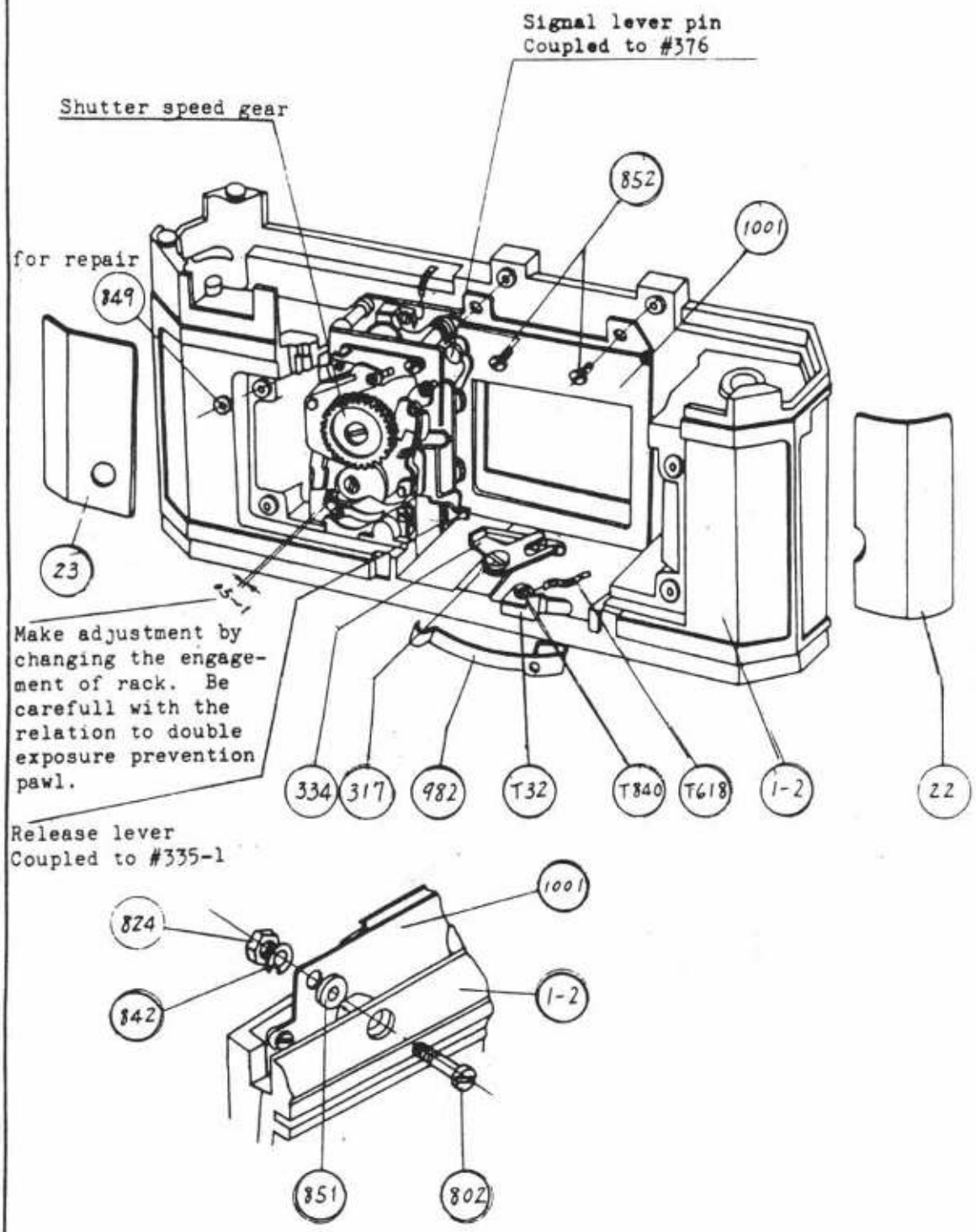



How to attach the shutter to the bottom surface of body

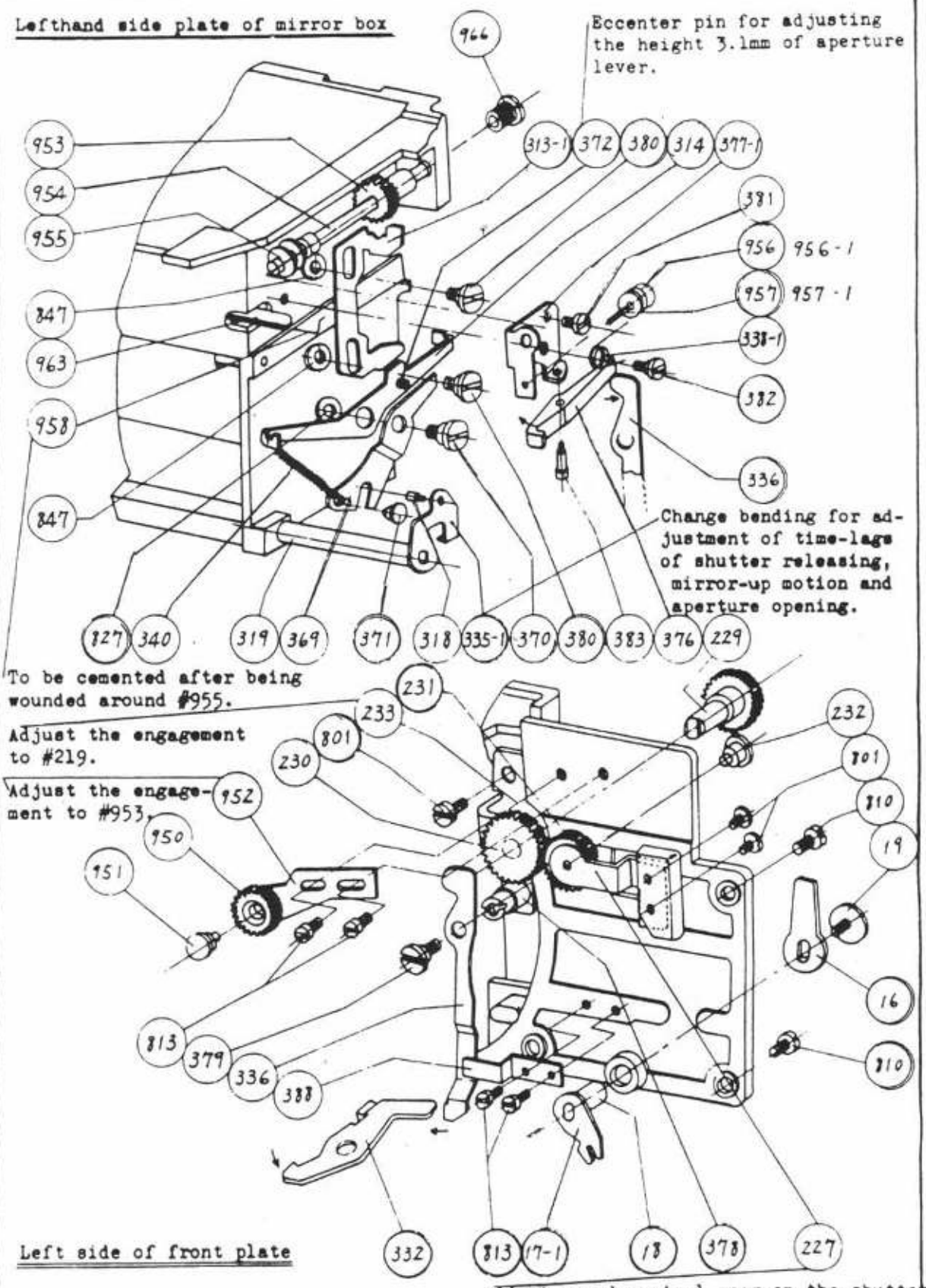
FTH - Fig. 4

## Atteaching the shutter



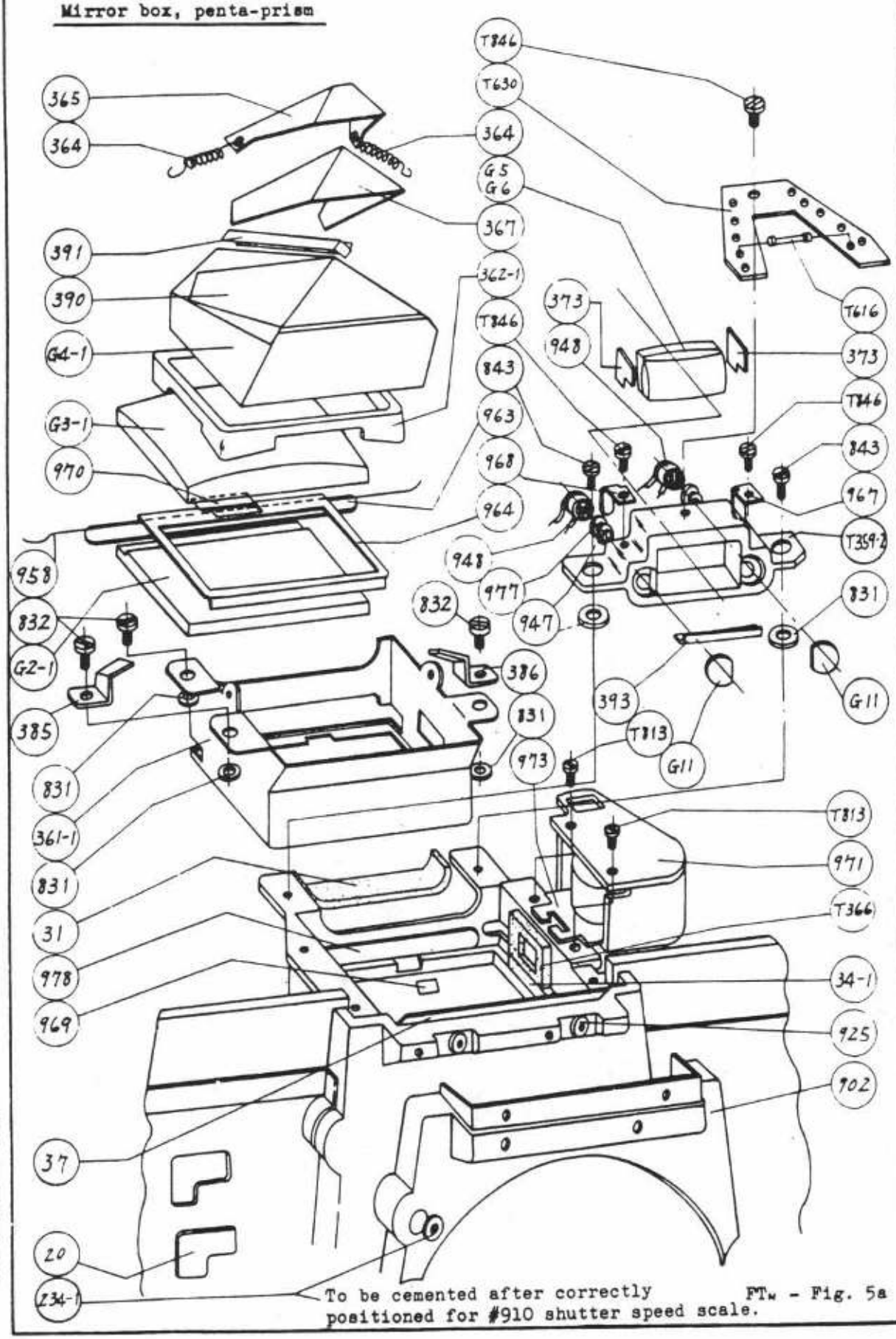

How to attach the shutter to the bottom surface of body

FTN - Fig.48


Lefthand side plate of mirror box
Eccenter pin for adjusting the height 3.1mm of aperture lever.
Change bending for adjustment of time-lags of shutter releasing, mirror-up motion and aperture opening.
To be cemented after being wounded around #955.
Adjust the engagement to #219.
Adjust the engagement to #953.
Left side of front plate
Adjust speed control gear on the shutter side and #230.
966
953
954
955
847
963
958
847
313-1
372
380
314
377-1
381
956
956-1
957
957-1
331-1
382
336
827
340
319
369
371
318
335-1
370
380
383
376
229
231
233
801
230
952
950
951
232
701
310
19
16
310
813
379
336
388
332
813
17-1
18
378
227

FT.. - Fig. 5

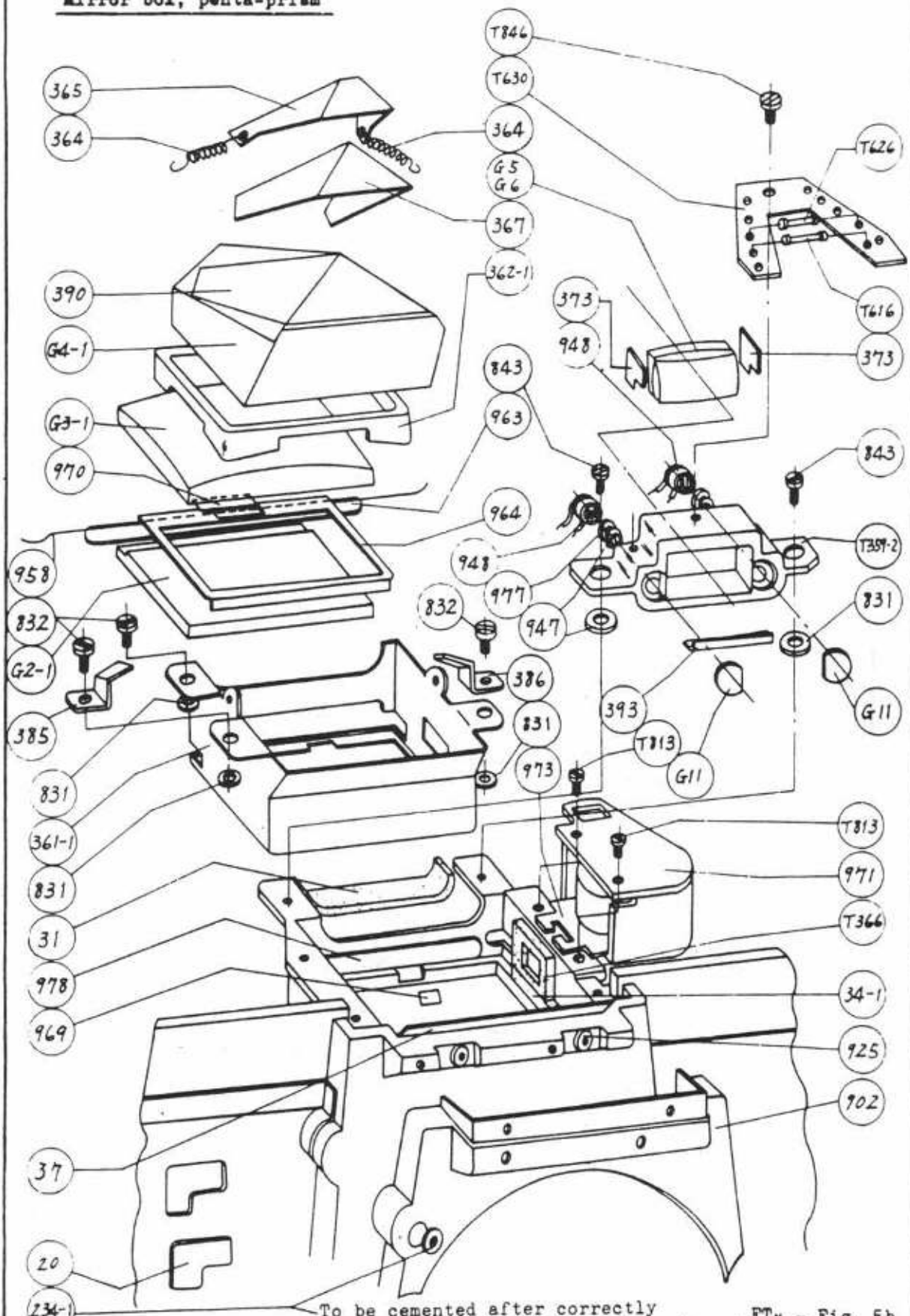
## Mirror box, penta-prism




To be cemented after correctly positioned for #910 shutter speed scale.

FTM - Fig. 5a

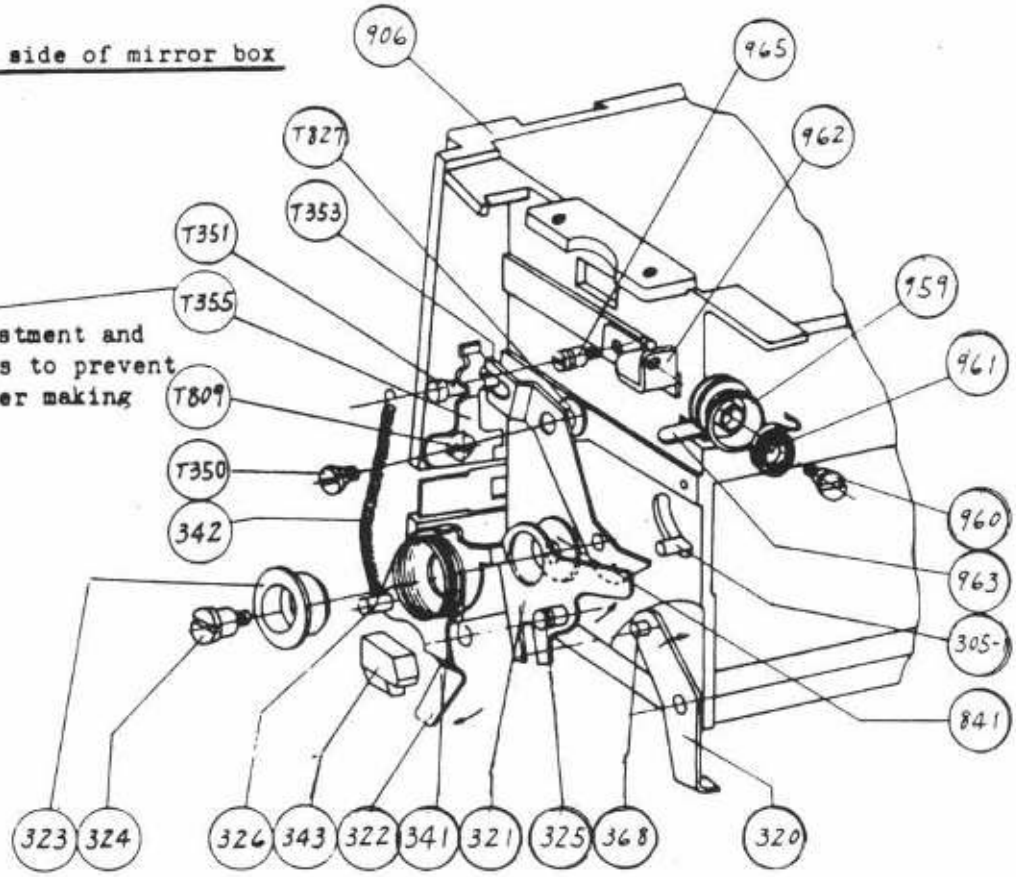
## Mirror box, penta-prism




To be cemented after correctly positioned for #910 shutter speed scale.

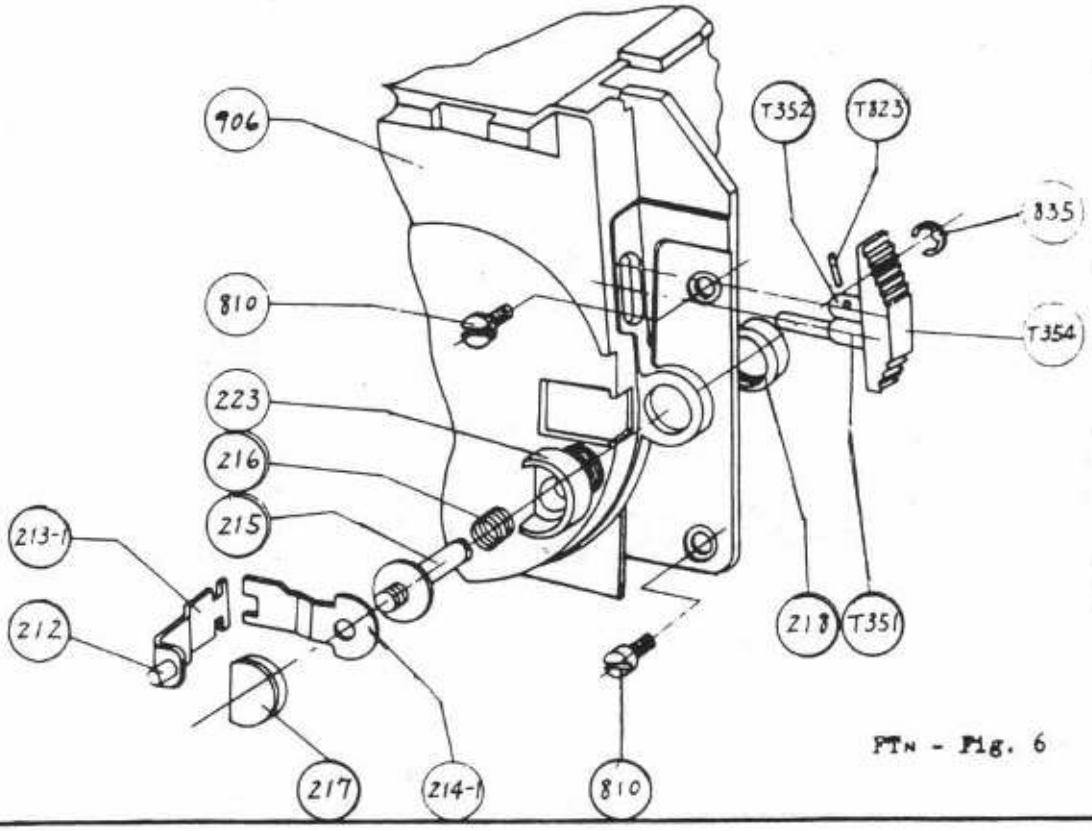
FT$_M$ - Fig. 5b

Right side of mirror box



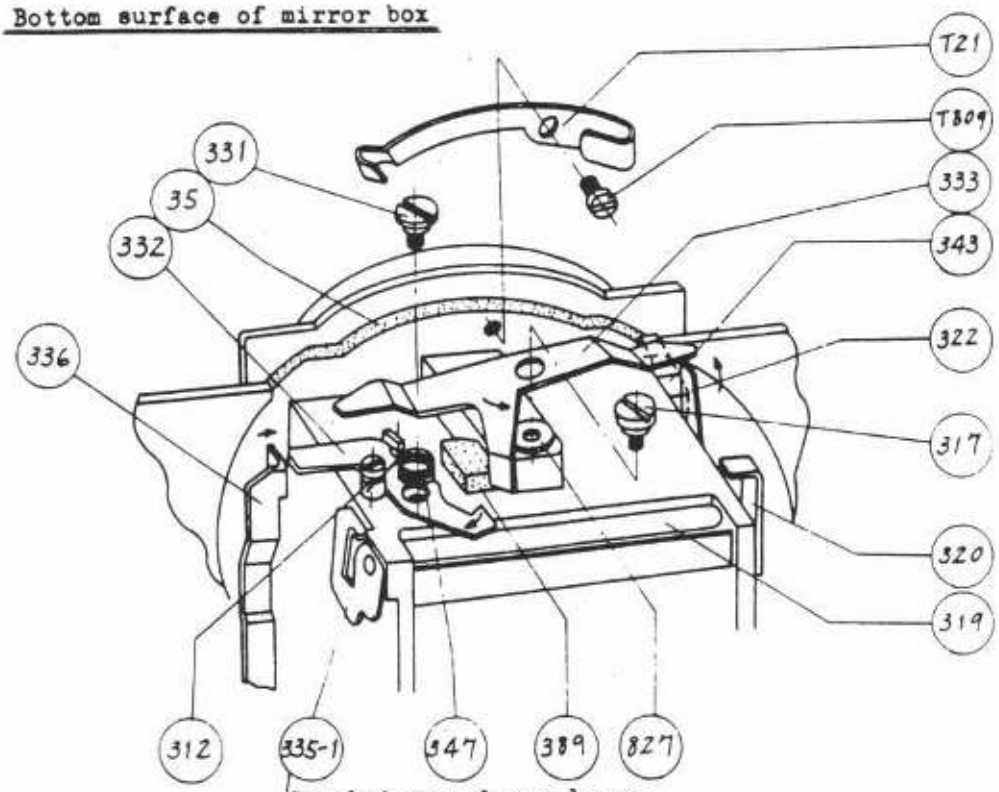

Perform adjustment and fitting so as to prevent opening, after making mirror-up.

Lens lock button and mirror-up button



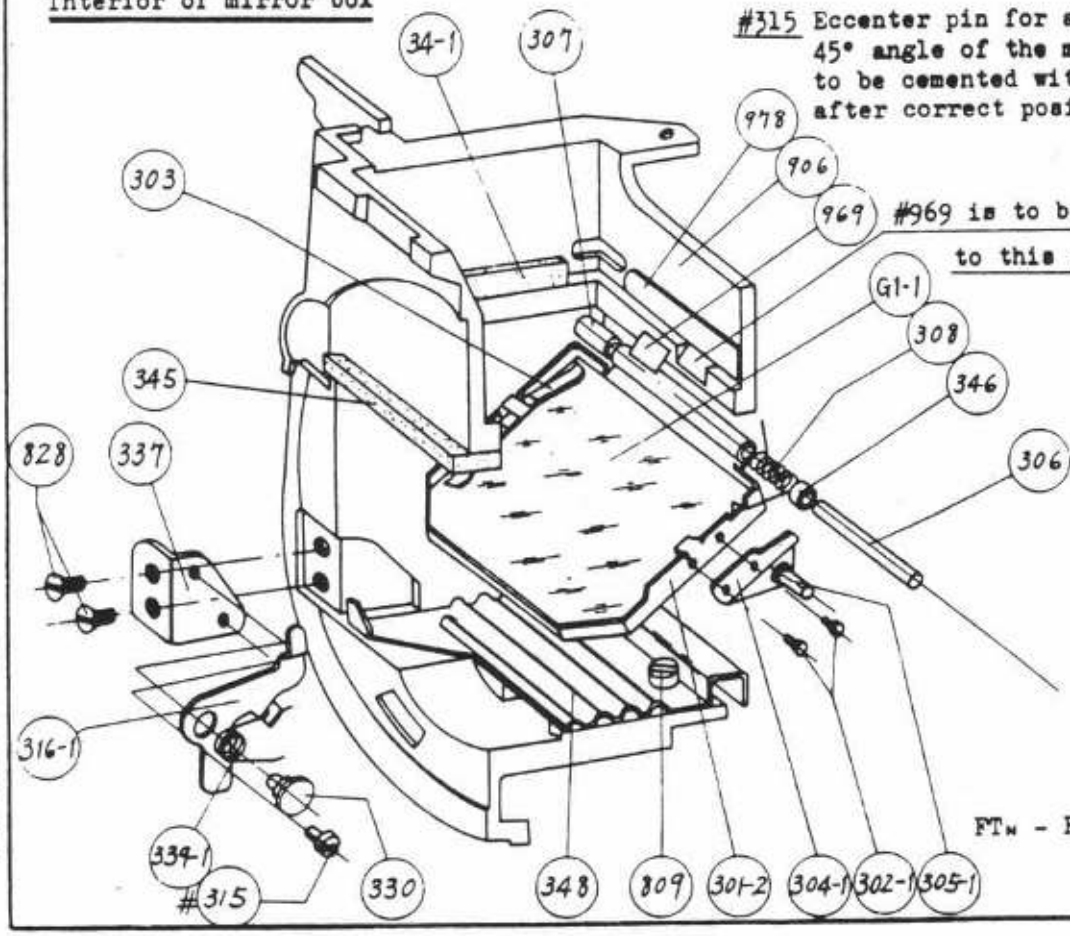

FTN - Fig. 6

## Bottom surface of mirror box




Coupled to release lever

## Interior of mirror box



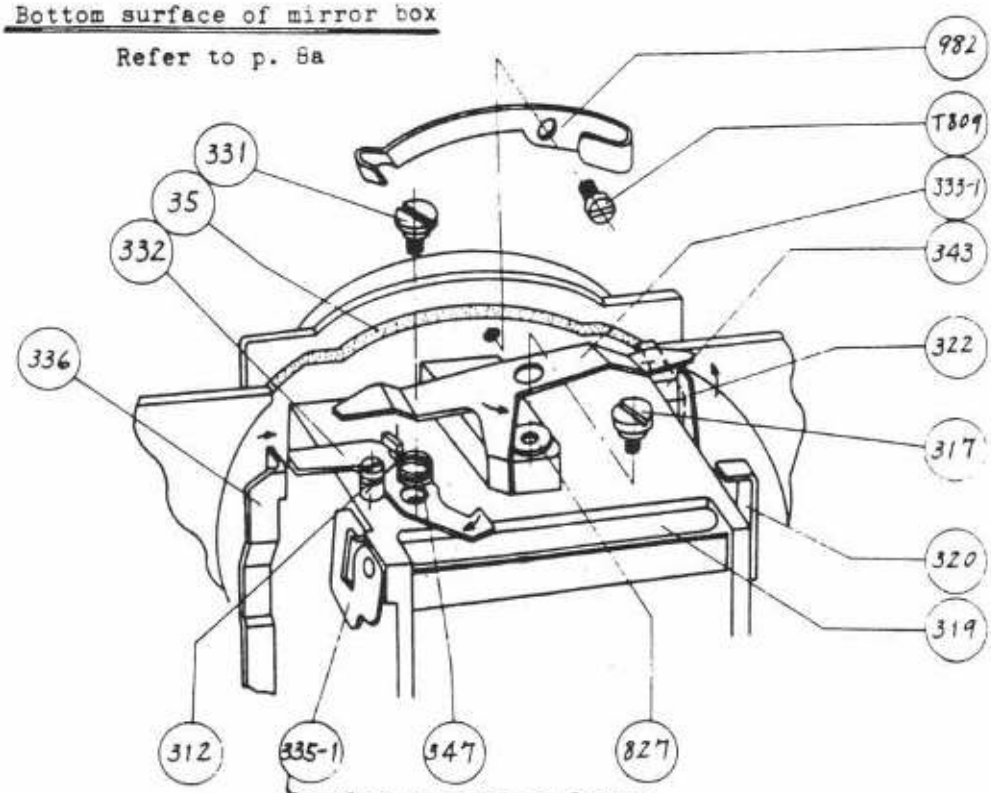

#315 Eccenter pin for adjusting 45° angle of the mirror is to be cemented with lacquer after correct positioning.

#969 is to be cemented to this part.

FT$_M$ - Fig. 6a

## Bottom surface of mirror box

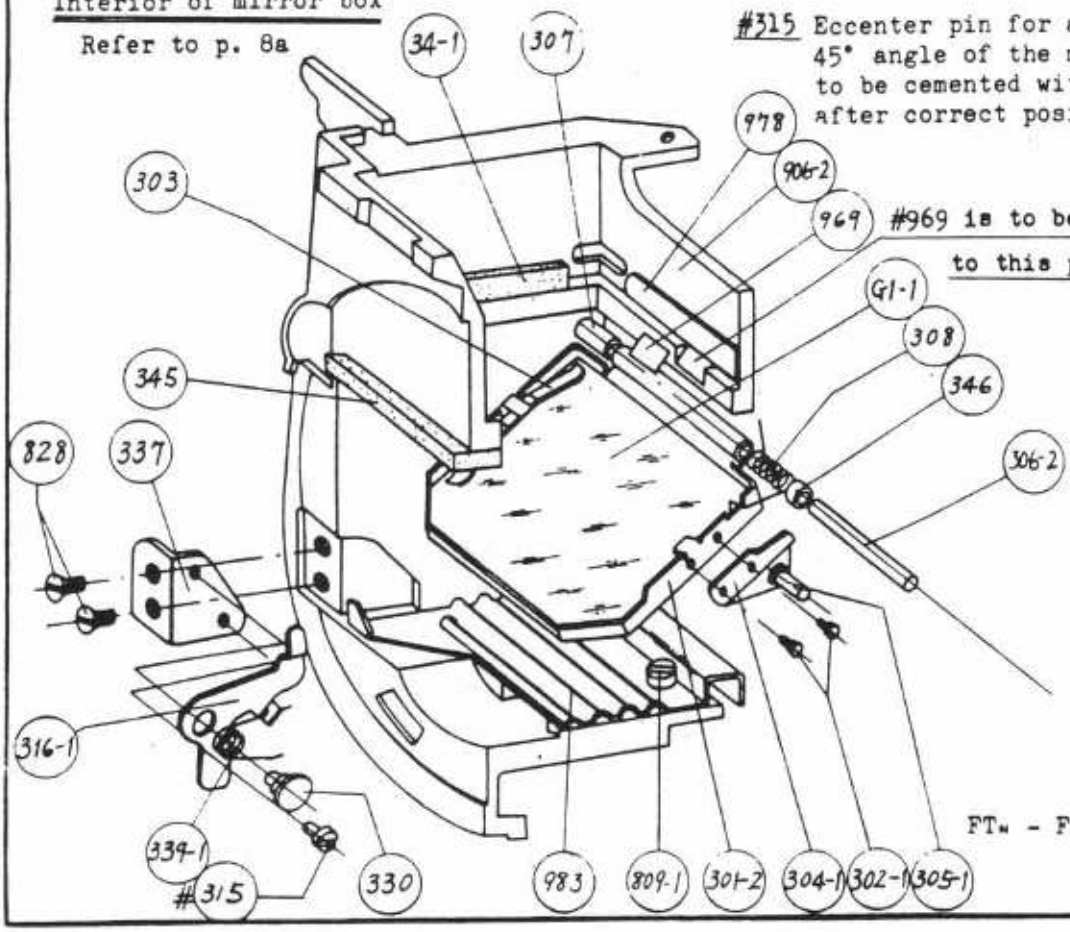
Refer to p. 8a




Coupled to release lever

## Interior of mirror box

Refer to p. 8a



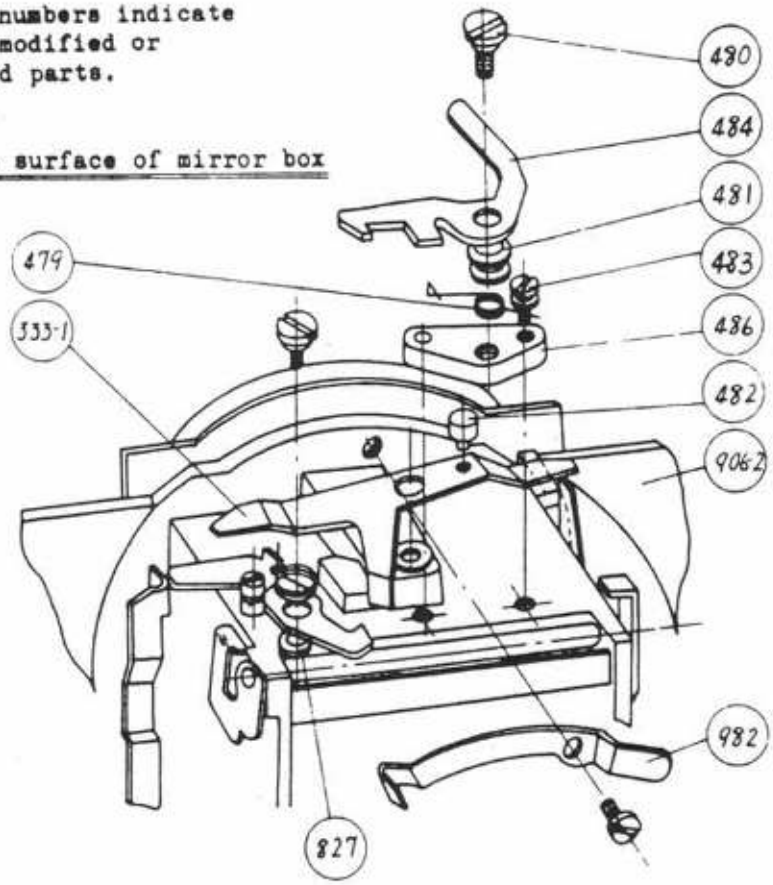

#315 Eccenter pin for adjusting 45° angle of the mirror is to be cemented with lacquer after correct positioning.

#969 is to be cemented to this part.

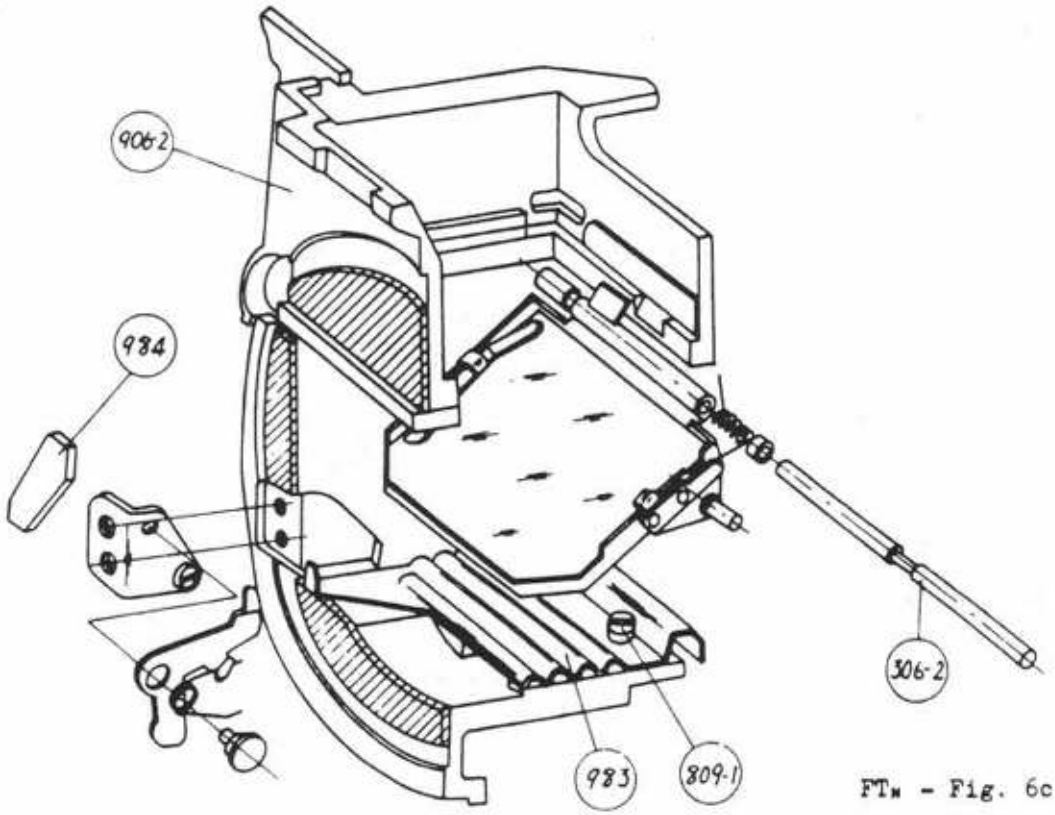
FTw - Fig. 6b

Note: The numbers indicate the modified or added parts.

Bottom surface of mirror box

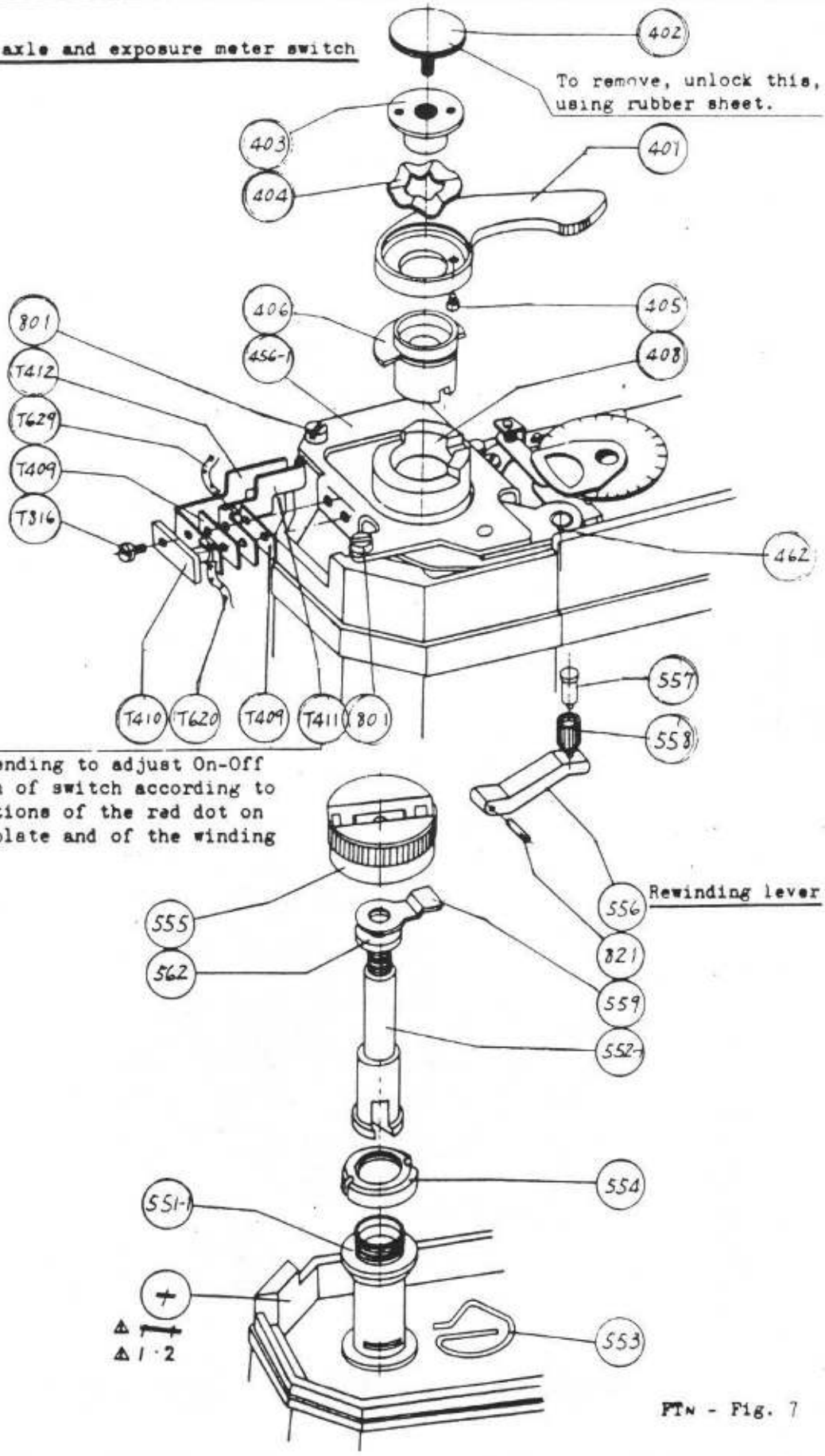



Interior of mirror box




FTM - Fig. 6c

## Winding axle and exposure meter switch

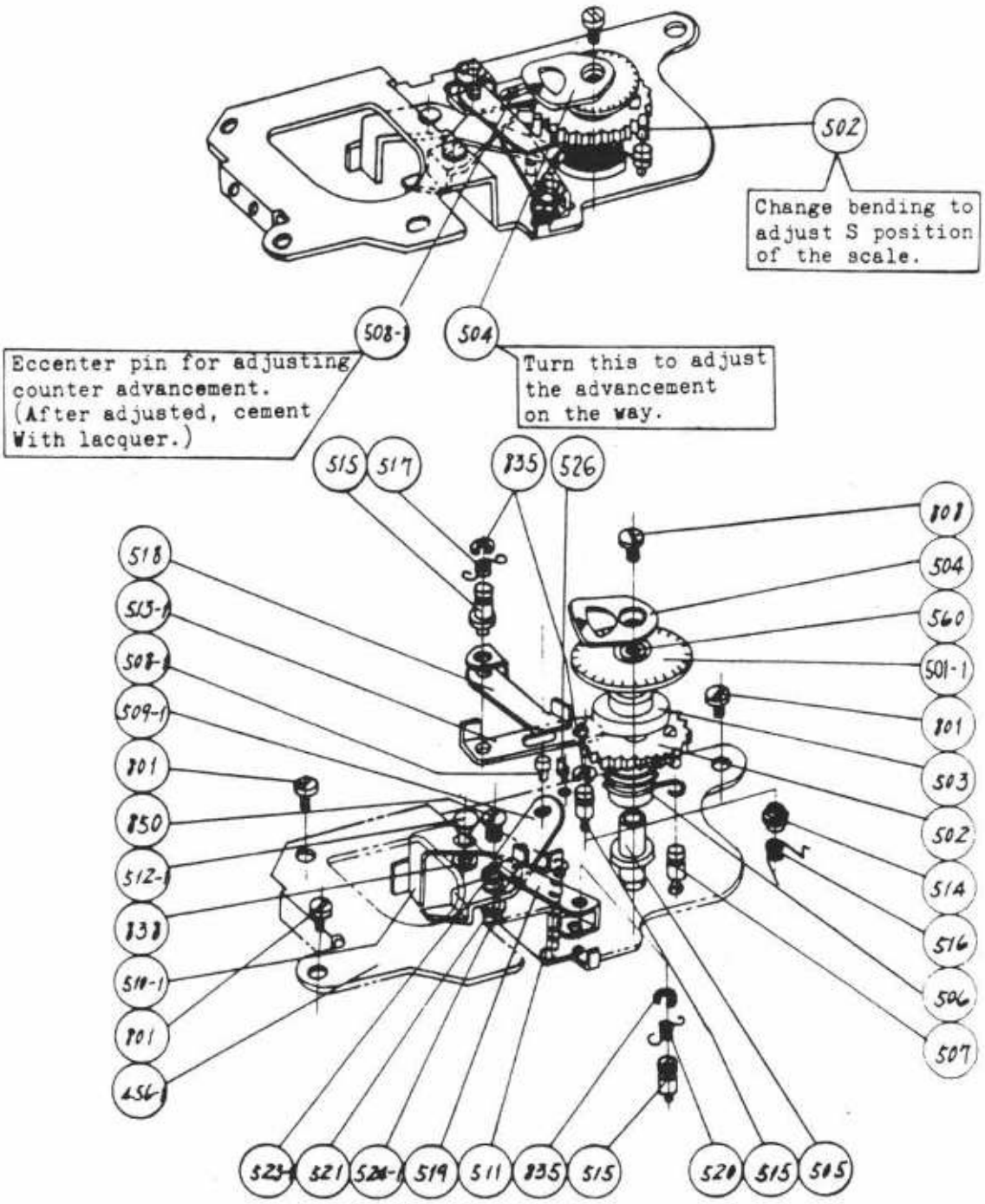



FTN - Fig. 7

Revision-1 ⚠×2

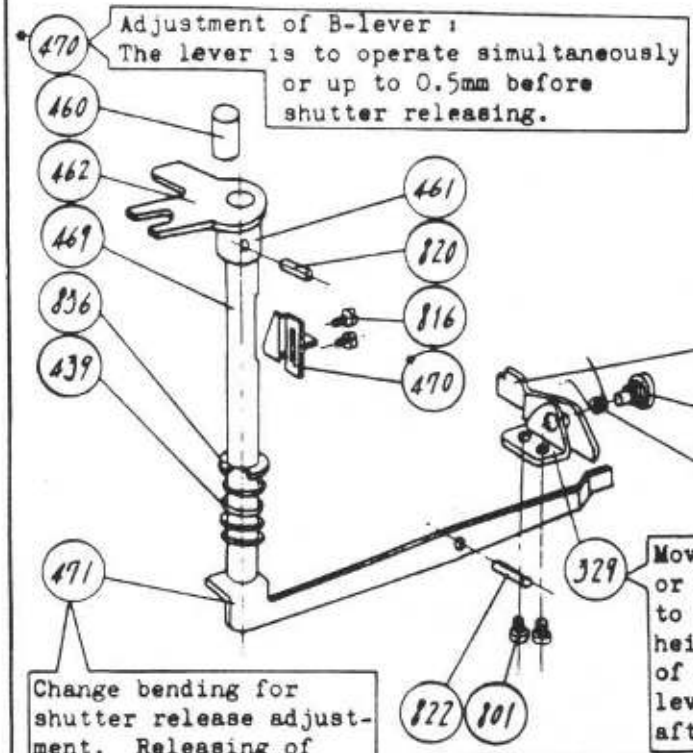
**Film counter**

Adjustment proceeds as follows;
Advance the scale to 10 - 20 after being assembled. In this position, be sure of engagement of stopper pawl #519 to the ratchet. Set index plate #504 to the scale. Then, adjust the advancement by means of eccenter pin #508-1. Open the camera back. Return the counter to zero. In this position, if any displacement is found between S and the index, make adjustment by bending the stopper part of the ratchet #502.

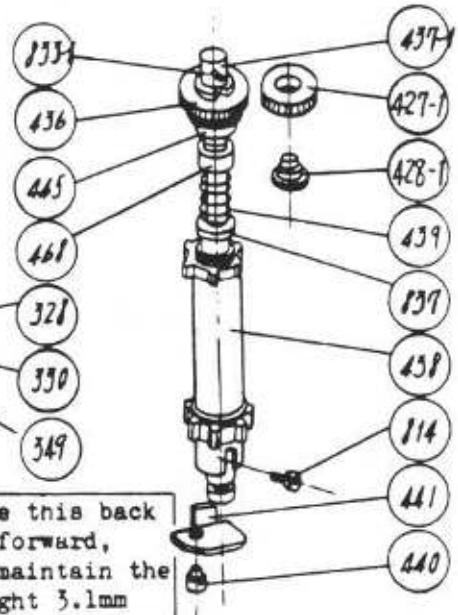



FT- - Fig. 8

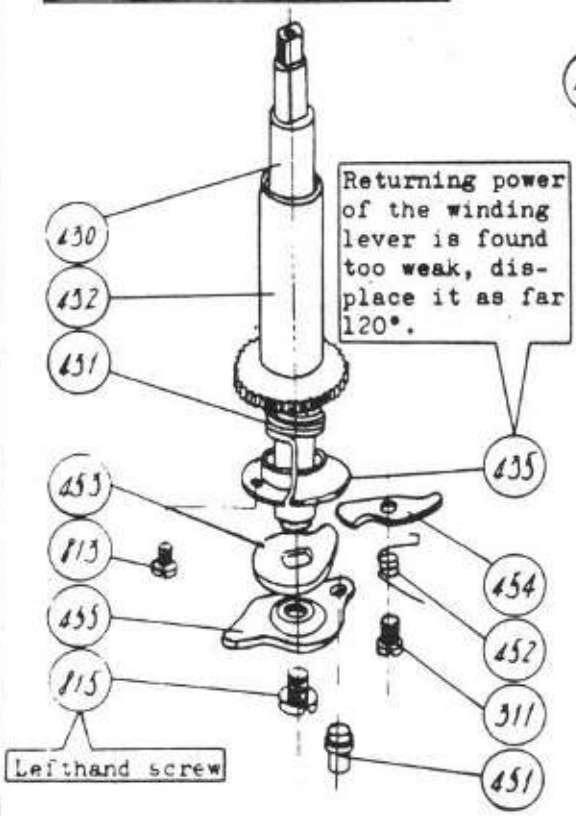
## Push button shaft and see-saw lever


470
Adjustment of B-lever :
The lever is to operate simultaneously or up to 0.5mm before shutter releasing.
460
462
469
836
439
461
820
816
470
471
Change bending for shutter release adjustment. Releasing of safety device and the releasing position are to be adjusted so that shutter is released simultaneously or up to 0.3mm (in stroke) after the releasing.
822
801
329
Move this back or forward, to maintain the height 3.1mm of the aperture lever before or after winding.
328
330
349

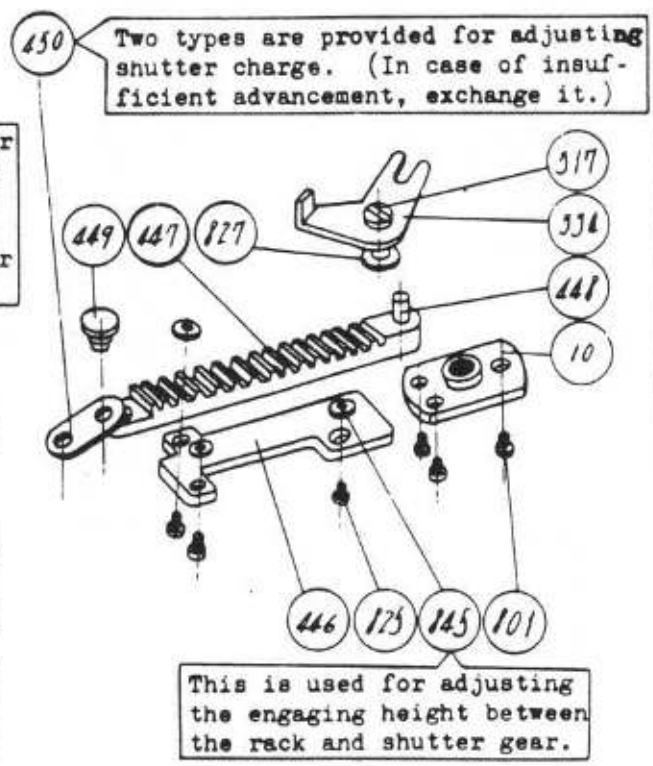
## Sprocket shaft




## Lower part of winding shaft

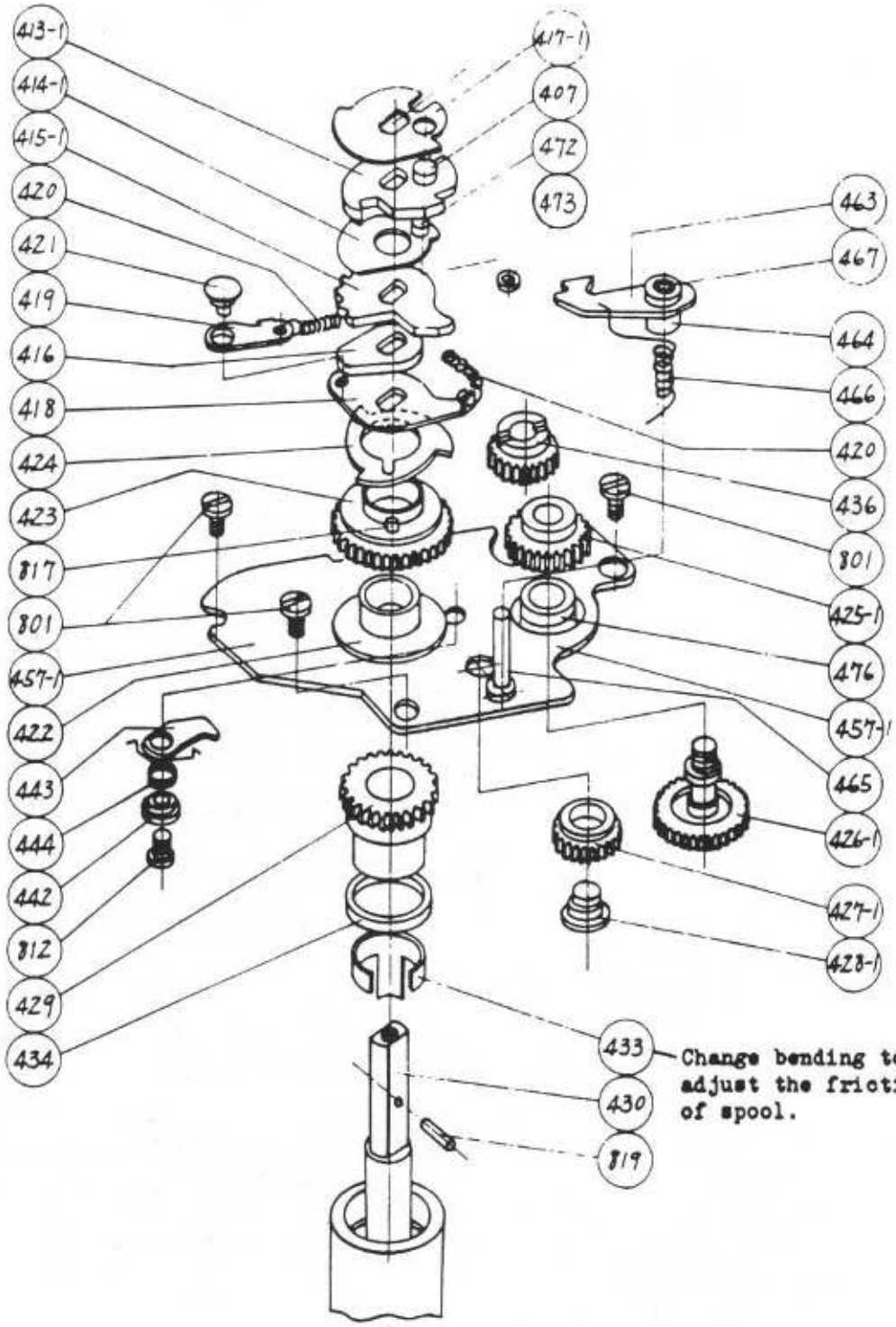



## Rack plate and tripod socket



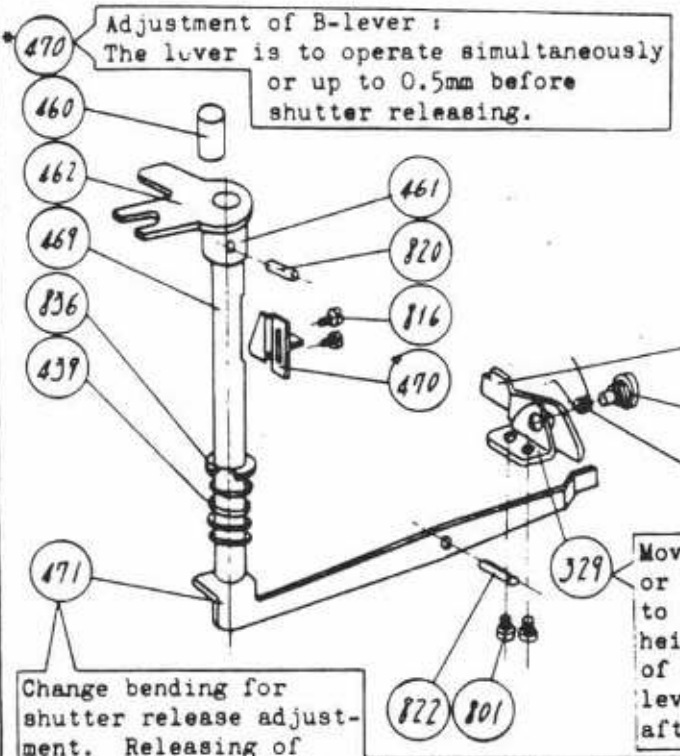

FT- Fig. 9

## Take-up shaft and safety device

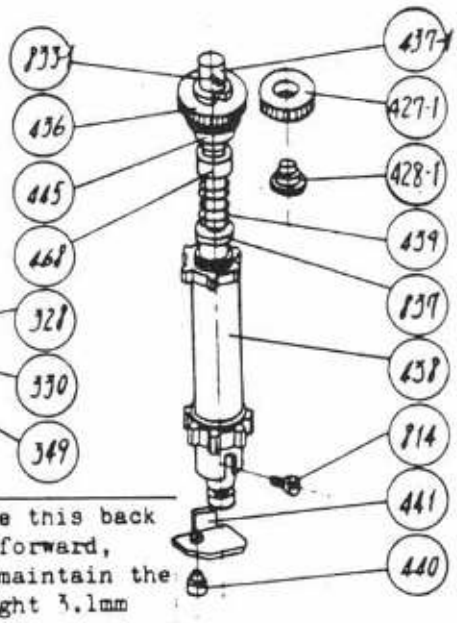



FTw - Fig. 9a

## Push button shaft and see-saw lever

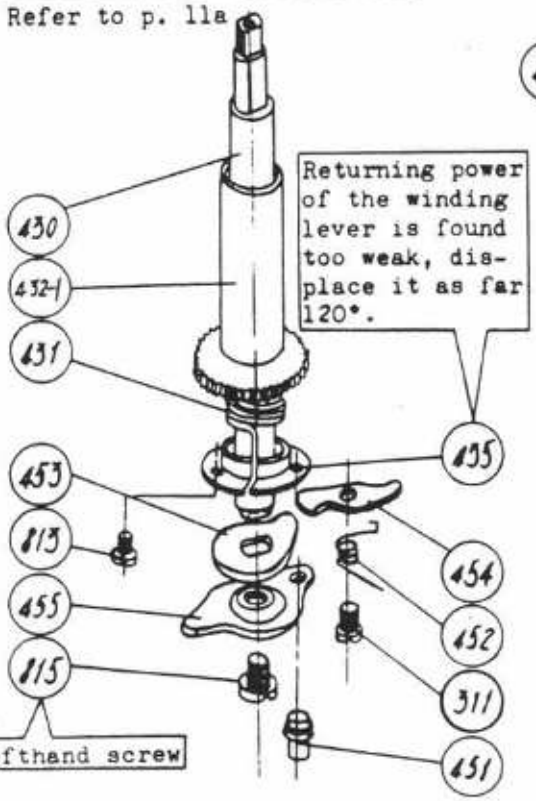

470
Adjustment of B-lever :
The lever is to operate simultaneously or up to 0.5mm before shutter releasing.
460
462
469
836
439
461
820
816
470
471
822
801
329
321
330
349
Move this back or forward, to maintain the height 3.1mm of the aperture lever before or after winding.
Change bending for shutter release adjustment. Releasing of safety device and the releasing position are to be adjusted so that shutter is released simultaneously or up to 0.3mm (in stroke) after the releasing.

## Sprocket shaft



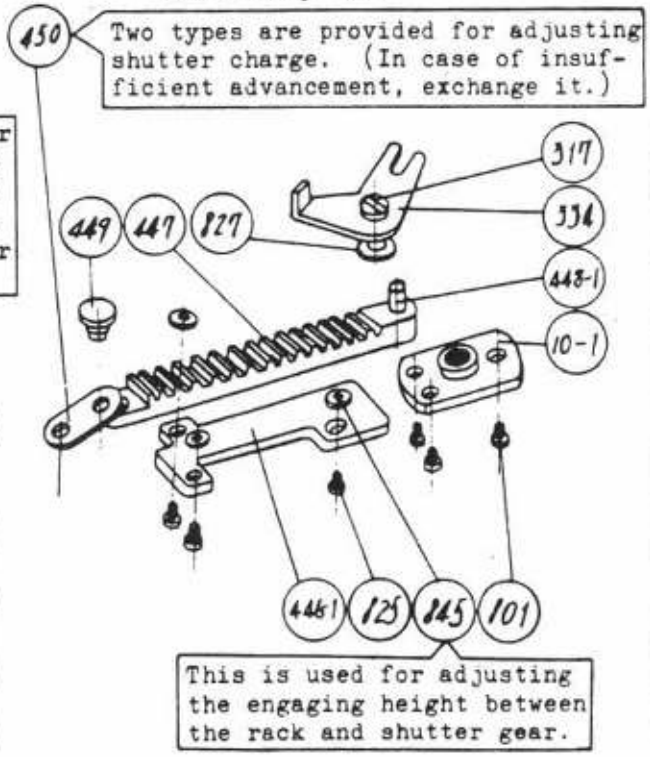

## Lower part of winding shaft

Refer to p. 11a



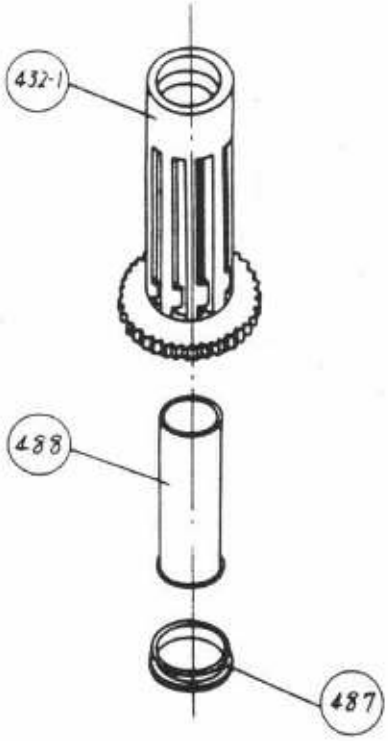

## Rack plate and tripod socket

Refer to p. 11a

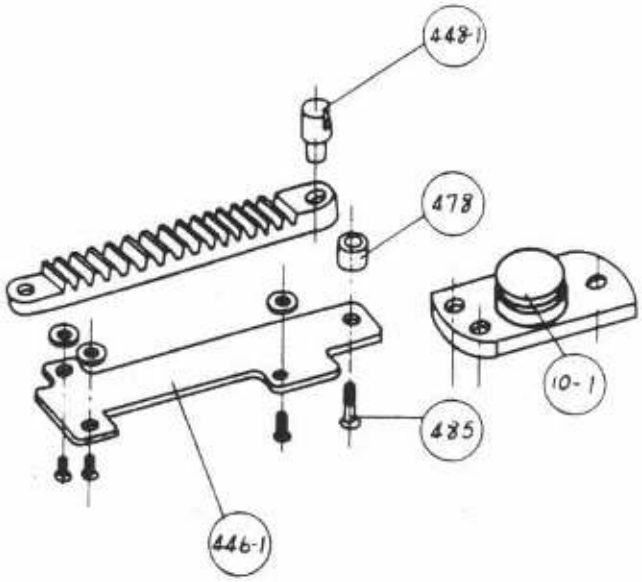



FTM - Fig. 9b

Lower part of winding shaft

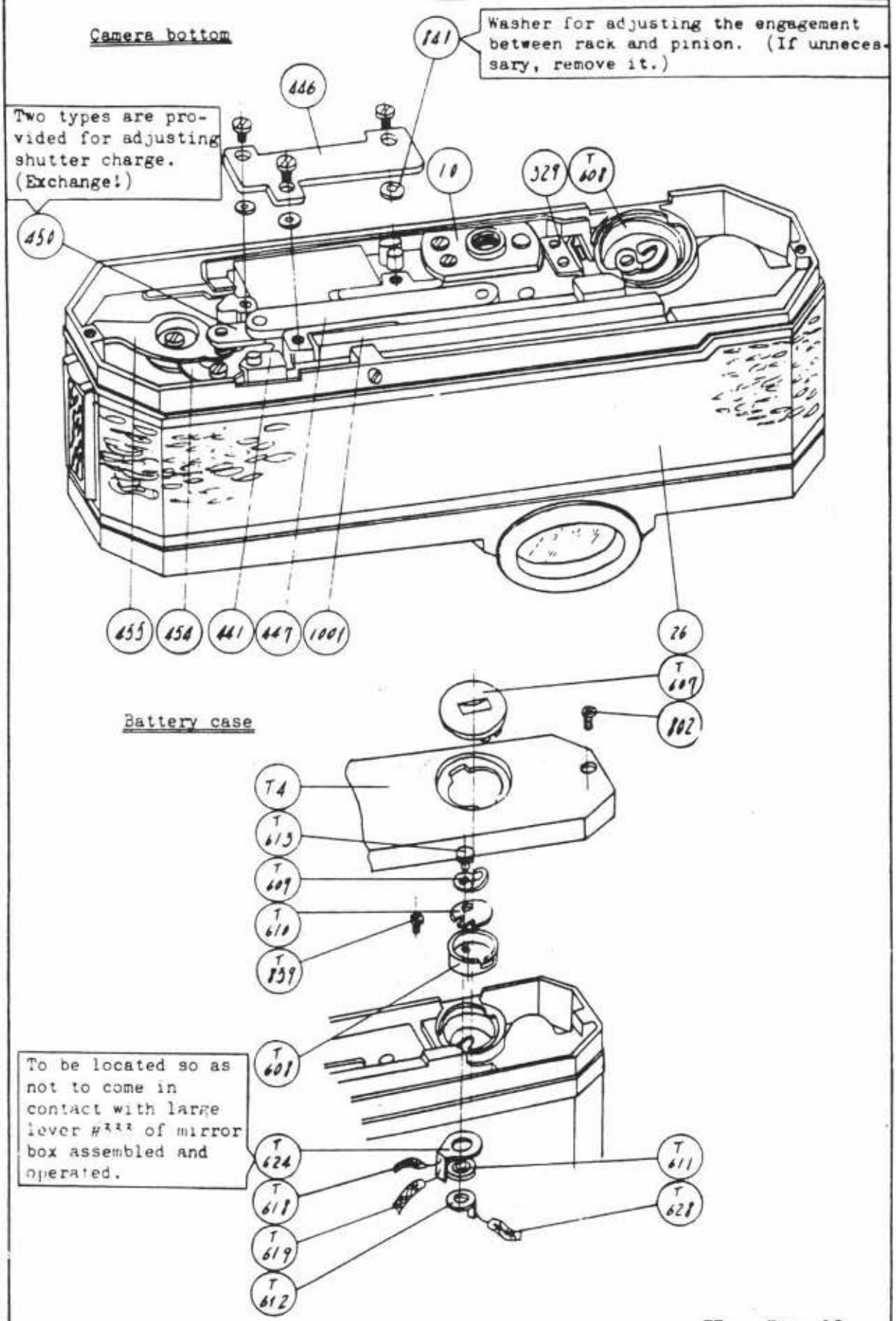



Rack plate and tripod socket




Note: The numbers indicate the modified or added parts.

FTN - Fig. 9c


Camera bottom
141
Washer for adjusting the engagement between rack and pinion. (If unnecessary, remove it.)
446
Two types are provided for adjusting shutter charge. (Exchange!)
450
10
329
T 601
455
458
441
447
1001
26
T 607
102
Battery case
T4
T 613
T 609
T 610
T 139
T 601
To be located so as not to come in contact with large lever #333 of mirror box assembled and operated.
T 624
T 618
T 619
T 612
T 611
T 628

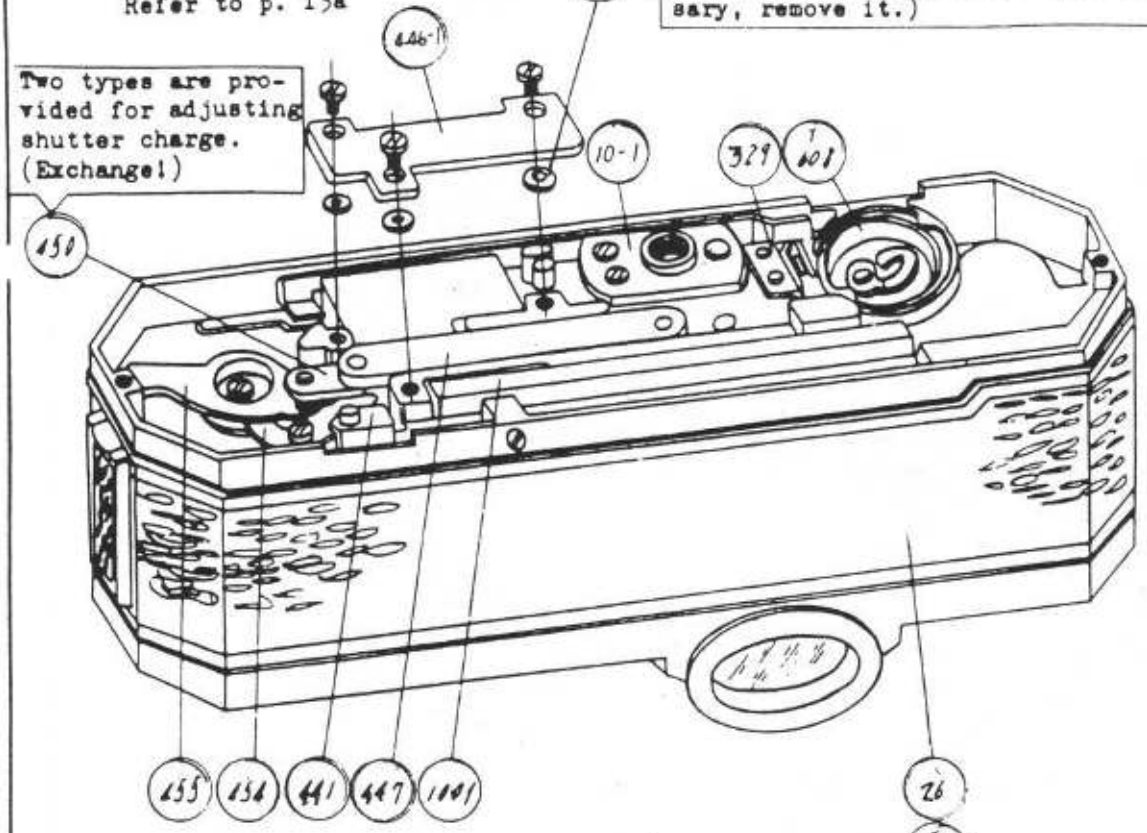
FTw - Fig. 10

**Camera bottom**

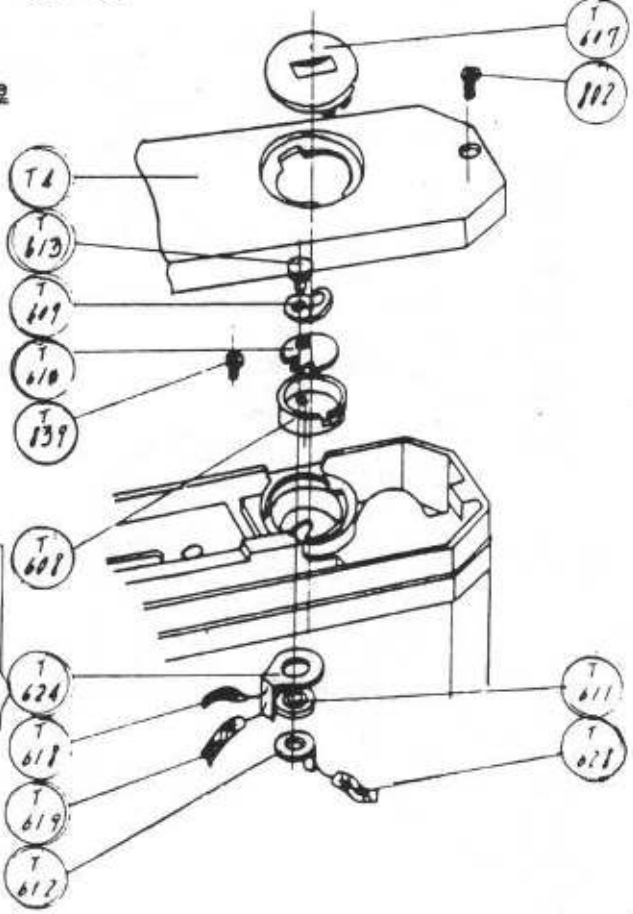
Refer to p. 13a

Washer for adjusting the engagement between rack and pinion. (If unnecessary, remove it.)

Two types are provided for adjusting shutter charge. (Exchange!)



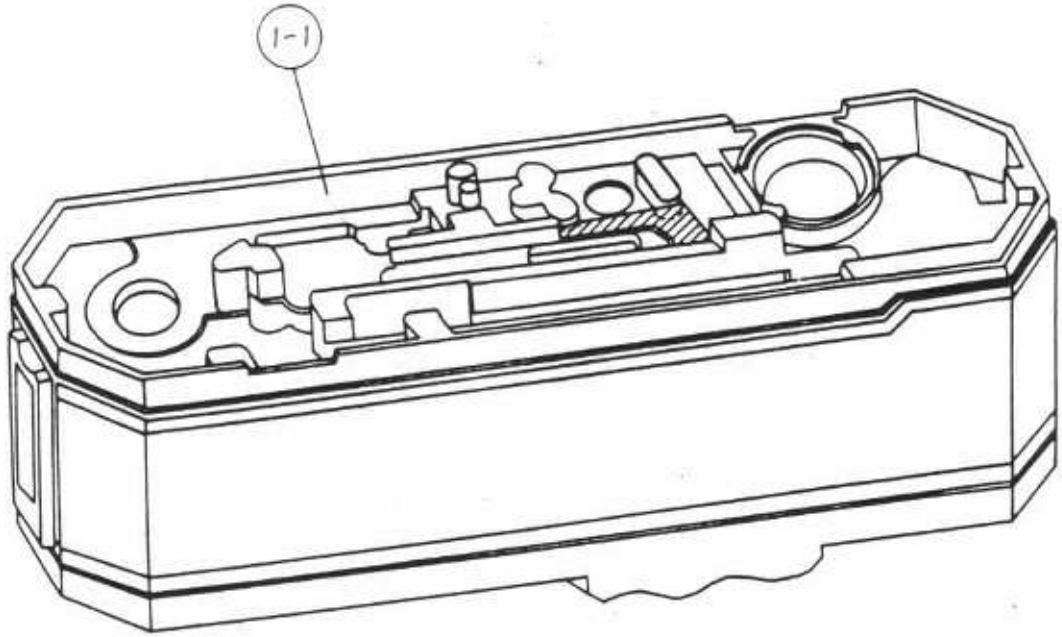

**Battery case**

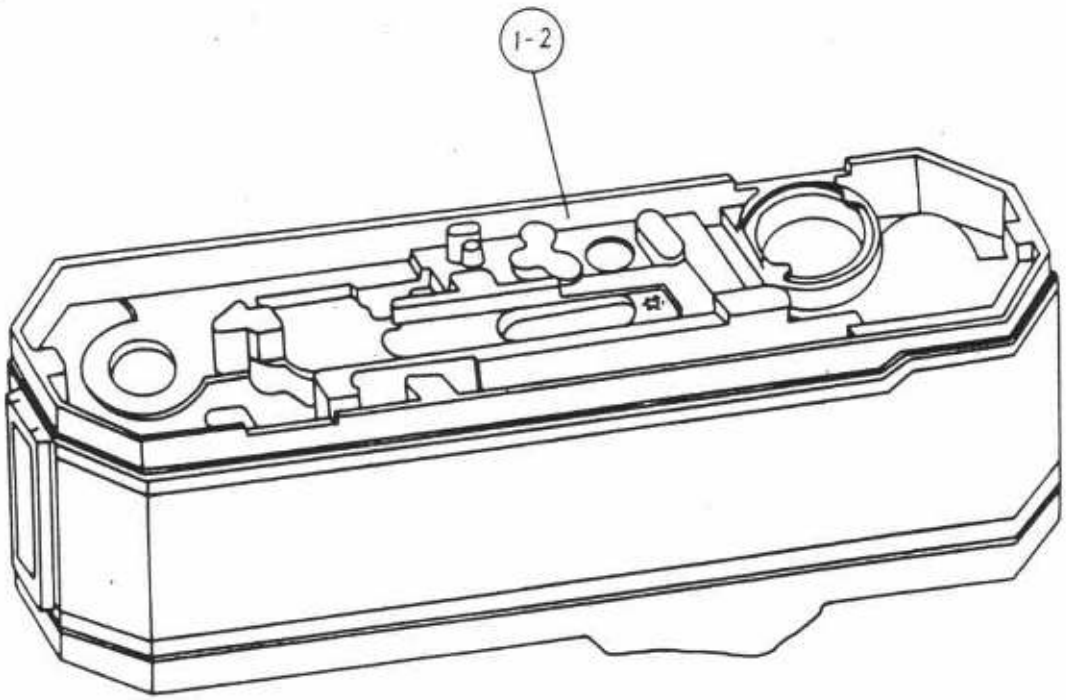



To be located so as not to come in contact with large lever #333 of mirror box assembled and operated.

FT- Fig. 10a

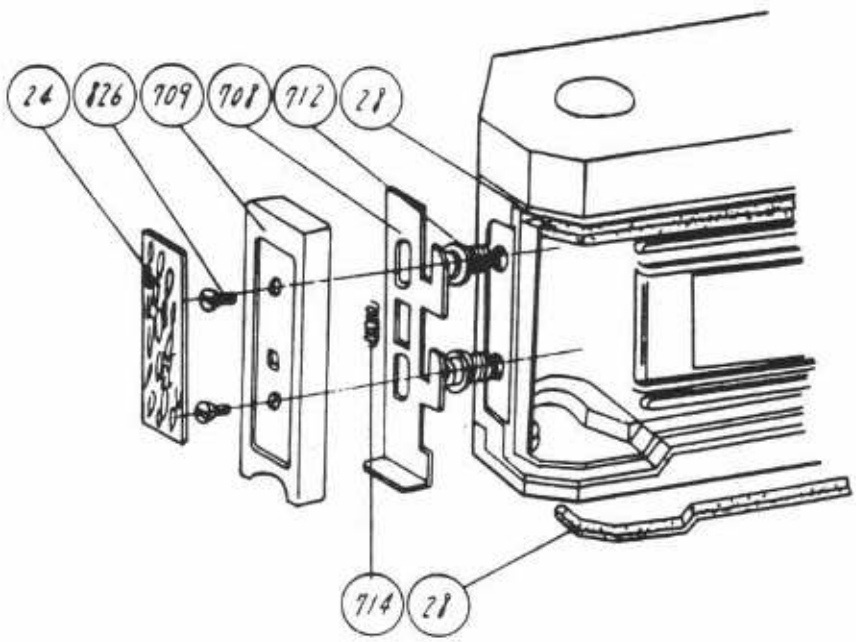
Body (#1-1)



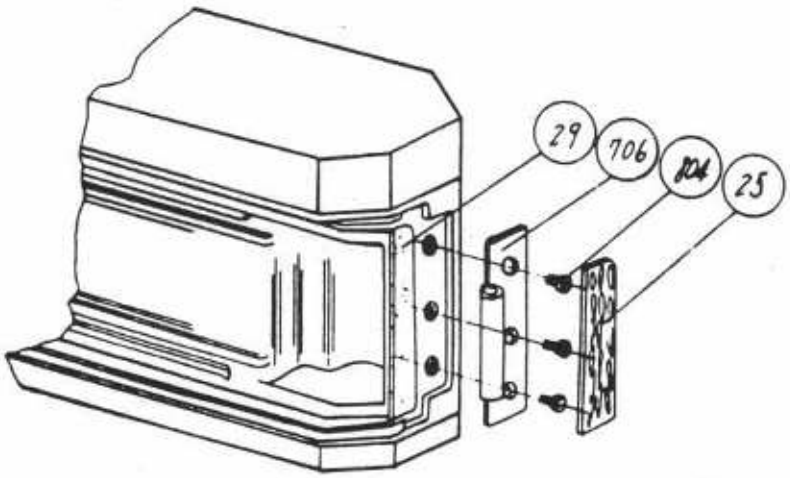




FTN - Fig. 10b

Latch

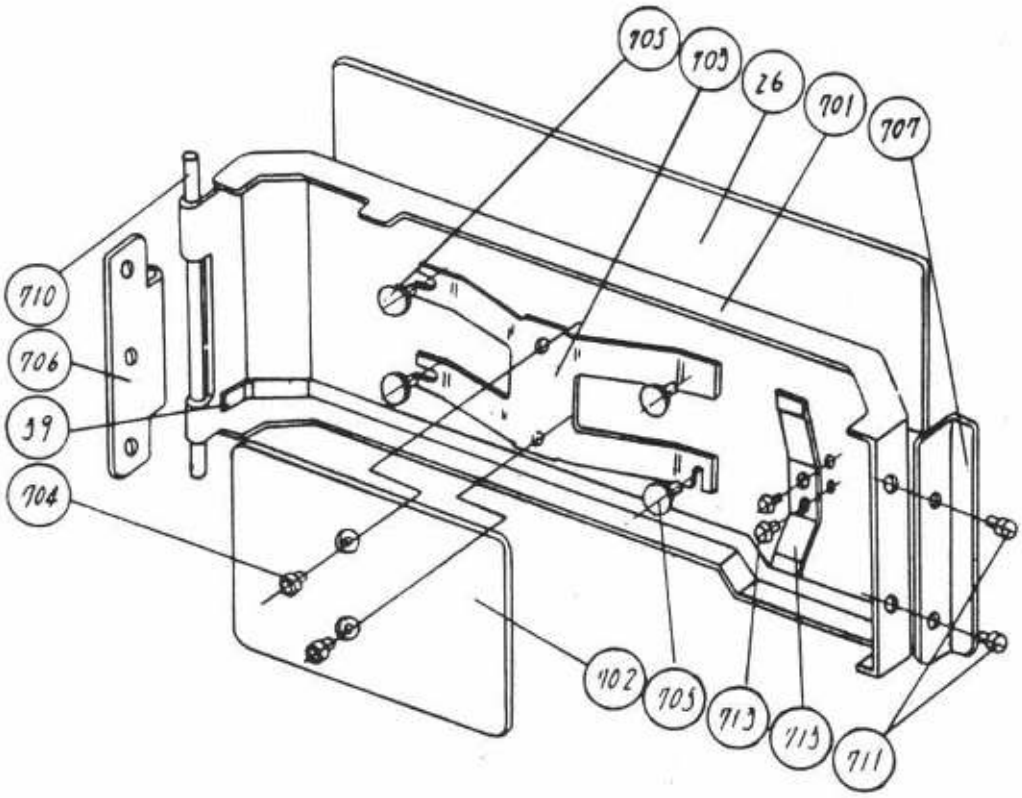



Hinge



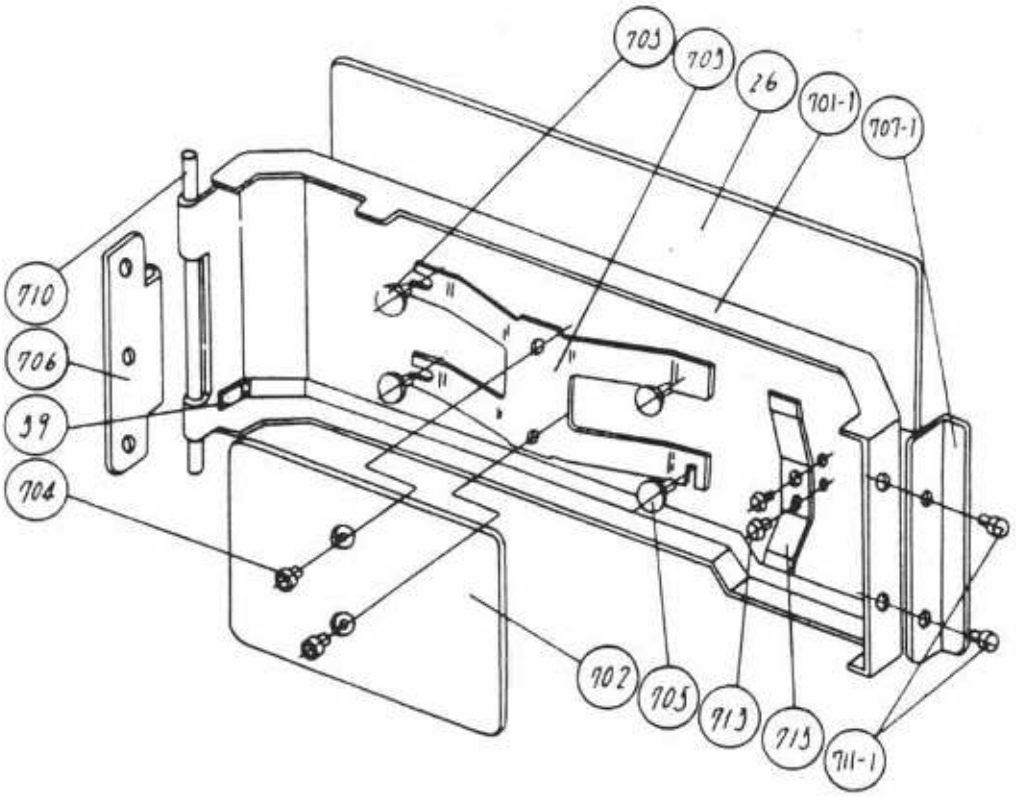

FTN - Fig. 11

Back cover, hinge



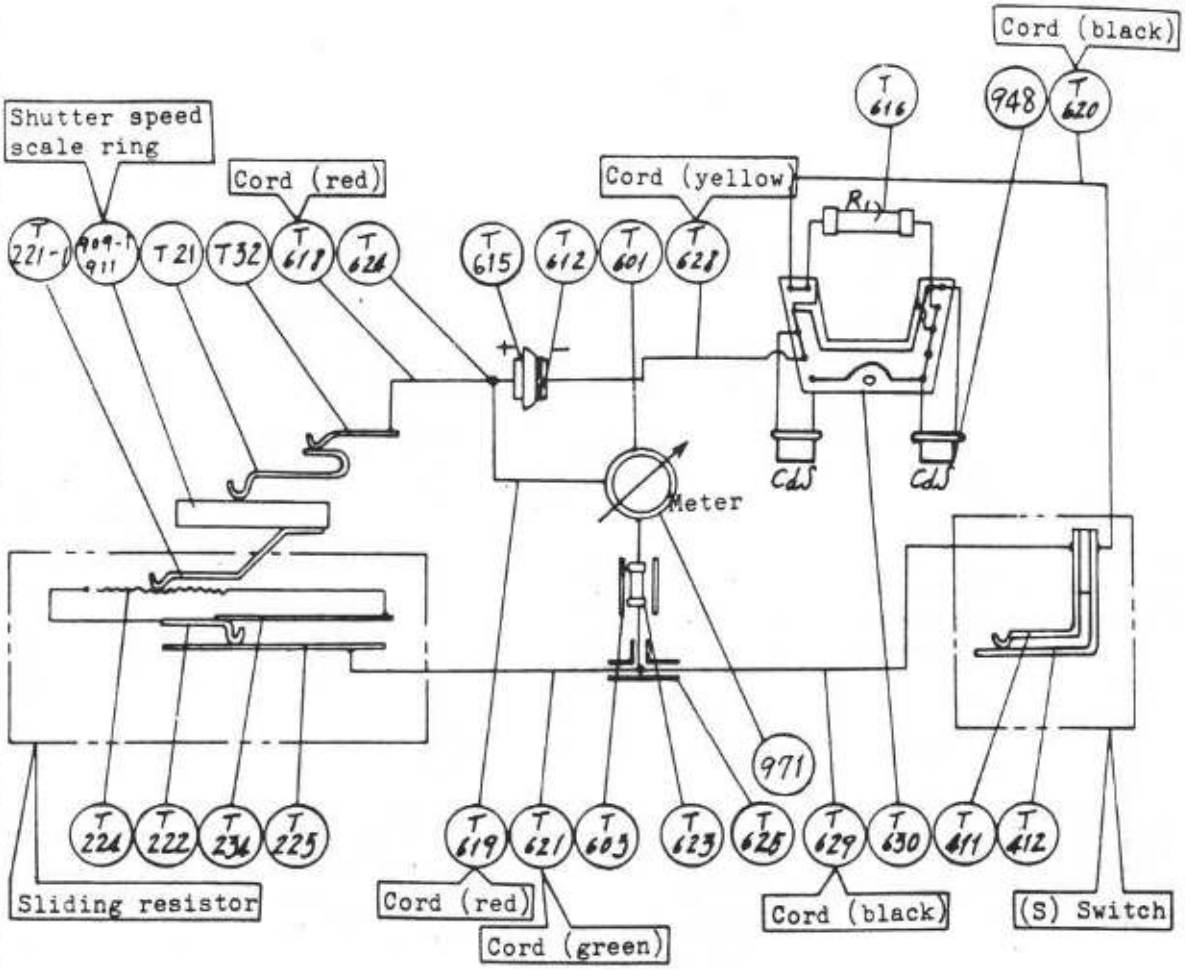

FTw - Fig. 12

Back cover, hinge



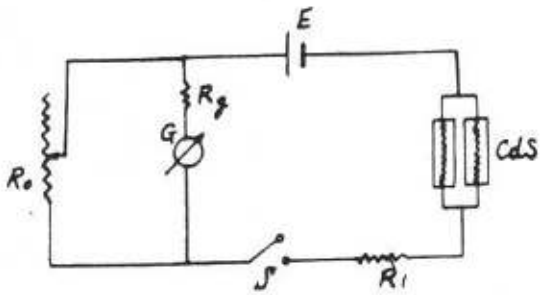

FTw - Fig. 12a

## Schematic view of wiring



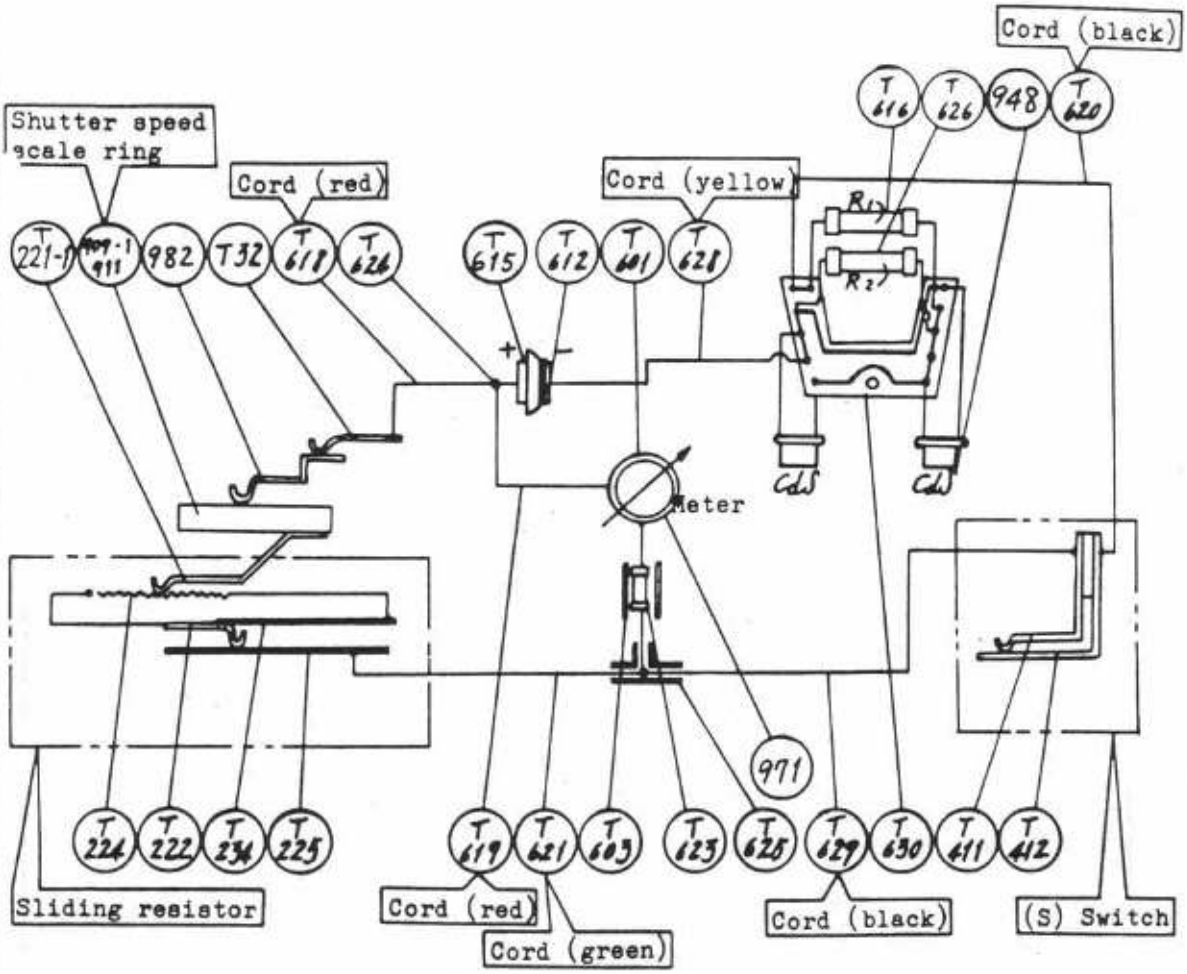

## Wiring diagram

S = Switch
R1 = Resistor
RO = Sliding resistor
G = Meter
E = Battery
CdS = Cadmium sulfide photo-conductor

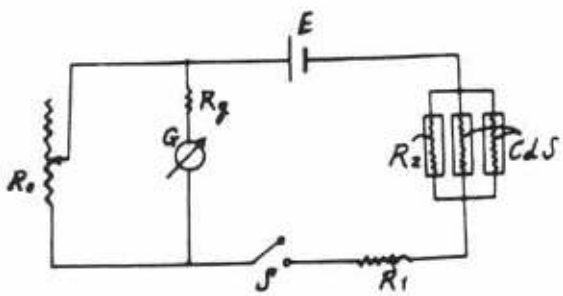



FTw - Fig. 13

## Schematic view of wiring




## Wiring diagram




S = Switch
R1 = Resistor
R2 = Resistor
RO = Sliding resistor
G = Meter
E = Battery
CdS = Cadmium sulfide photo-conductor

FTw - Fig.13a

| No. of Part | Name and Shape | Pcs. per Unit | No. of Subassembly | Ref. Fig. No. | Term of Sale | Remarks |
|---|---|---|---|---|---|---|
| 31FB-1 | Body | 1 | | 4, 7 | × | |
| ⚠ 1-1 | Body | 1 | | 7, 10b | × | Modified |
| ⚠ 1-2 | Body | 1 | | 4a, 7 10b | × | Modified |
| 10 | Tripod socket | 1 | | 9, 10 | ○ | |
| ⚠ 10-1 | | | | 9b, 9c 10a | | Modified |
| 11 | Eyelet | 2 | | 2, 2a | ○ | |
| 12 | Synchro terminal nut plate | 1 | TNA1 | 2, 2a | ○ △ | |
| 15 | Synchro terminal | 2 | TNA1 | 2, 2a | ○ △ | |
| 16 | Self-timer lever | 1 | TNC1 | 5 | ○ | |
| 17-1 | Self-timer coupling lever | 1 | C14-1 | 5 | △ | |
| 18 | Self-timer lever shaft | 1 | C14-1 | 5 | △ | |
| 19 | Self-timer lever screw | 1 | TNC1 | 5 | ○ △ | |
| 20 | Front plate hole cover | 1 | | 5a, 5b | ○ | |
| | | | | | | |
| 22 | Right front leather | 1 | | 4, 4a | ○ | |
| 23 | Left front leather | 1 | | 4, 4a | ○ | |

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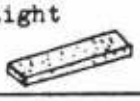
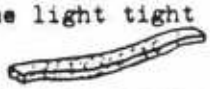
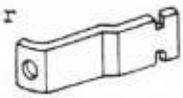
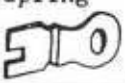
| No. of Part | Name and Shape | Pcs. per Unit | No. of Subassembly | Ref. Fig No | Term of Sale | Remarks |
|---|---|---|---|---|---|---|
| 31FB-24 | Latch cover leather | 1 | | 11 | ○ | |
| 25 | Hinge side leather | 1 | | 11 | ○ | |
| 26 | Back cover leather | 1 | E1 | 10, 10a 12, 12a | ○ △ | |
| | | | | | | |
| 28 | Body light tight sheet | 2 | | 11 | ○ | |
| 29 | Hinge light tight sheet | 1 | | 11 | ○ | |
| | | | | | | |
| 31 | Eye guard light tight sheet  | 1 | TNC15 | 5a, 5b | ○△ | |
| 33 | Top cover leather | 1 | TNA1 | 2, 2a | ○ △ | |
| 34-1 | Fresnel frame light tight sheet  | 2 | TNC1 | 5a, 5b 6a, 6b | ○ △ | |
| 35 | Front plate lower light tight sheet | 1 | TNC1 | 6a, 6b | ○ △ | |
| 37 | Front plate upper light tight sheet | 1 | TNC1 | 5a, 5b | ○△ | |
| 38 | Take-up shaft dust-tight ring | 1 | TNA1 | 2, 2a | △ | |
| 39 | Light tight sheet | 2 | E1 | 12, 12a | ○ △ | |
| | | | | | | |

| No. of Part | Name and Shape | Pcs. per Unit | No. of Subassembly | Ref. Fig No | Term of Sale | Remarks |
|---|---|---|---|---|---|---|
| 31FB- | | | | | | |
| | | | | | | |
| 208 | Bayonet spring | 3 | TND5 | 3, 3a | ○△ | |
| | | | | | | |
| 212 | Lens lock pin | 1 | D7-1 | 6 | △ | |
| 213-1 | Lens lock lever  | 1 | D7-1 | 6 | △ | |
| 214-1 | Lens lock lever coupling  | 1 | TNC1 | 6 | ○△ | |
| 215 | Lens lock axle | 1 | TNC1 | 6 | ○△ | |
| 216 | Lens lock button spring | 1 | TNC1 | 6 | ○△ | |
| 217 | Lens lock button | 1 | TNC1 | 6 | ○△ | |
| 218 | Lock button base nut | 1 | TNC1 | 6 | ○△ | |
| ~~▲ 219~~ | ~~Shutter A gear~~ | ~~1~~ | ~~TND1~~ | ~~3~~ | △ | Disused |
| 223 | Lens lock button base | 1 | TNC1 | 6 | ○△ | |
| | | | | | | |
| 227 | D gear bearing | 1 | C13 | 5 | △ | |

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| No. of Part | Name and Shape | Pcs. per Unit | No. of Subassembly | Ref. Fig No | Term of Sale | Remarks |
|---|---|---|---|---|---|---|
| 31FB- | | | | | | |
| 229 | Shutter B gear | 1 | C12 | 5 | △ | |
| 230 | Shutter C gear | 1 | C12 | 5 | △ | |
| 231 | Shutter D gear | 1 | C13 | 5 | △ | |
| 232 | D gear axle | 1 | C13 | 5 | △ | |
| 233 | B, C gear bearing | 1 | C12 | 5 | △ | |
| 234-1 | Shutter speed index | 1 | | 2, 2a 5a, 5b | ○ | |
| | | | | | | |
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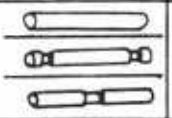
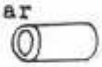
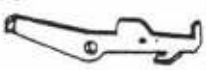
| No. of Part | Name and Shape | Pcs. per Unit | No. of Subassembly | Ref. Fig. No | Term of Sale | Remarks |
|---|---|---|---|---|---|---|
| 31FB-301-2 | Mirror support | 1 | C2-2 | 6a, 6b | △ | |
| 302-1 | Pin seat rivet | 2 | C2-2 | 6a, 6b | △ | |
| 303 | Mirror pressure plate | 1 | TNC1 | 6a, 6b | ○△ | |
| 304-1 | Mirror support pin bearing | 1 | C2-2 | 6a, 6b | △ | |
| 305-1 | Mirror support pin | 1 | C2-2 | 6, 6a 6b | △ | |
| 306 | Mirror shaft  | 1 | TNC1 | 6a | ○△ | |
| ⚠ 306-1 | | | | | | Modified |
| ⚠ 306-2 | | | TNC1-1 | 6b, 6c | | Modified |
| 307 | Mirror shaft collar (left side)  | 1 | TNC1 | 6a, 6b | ○△ | |
| 308 | Mirror spring | 1 | TNC1 | 6a, 6b | ○△ | |
| 309 | Manual aperture button base | 1 | TNA1 | 2, 2a | △ | |
| 310-1 | Manual aperture button axle | 1 | TNA1 | 2, 2a | ○△ | |
| 311 | A.R lever axle | 1 | | 9, 9b | ○ | |
| 312 | Spring retaining screw | 1 | TNC1 | 6a, 6b | ○△ | |
| 313-1 | Manual nperture lever | 1 | TNC1 | 5 | ○△ | |
| 314 | Aperture lever  | 1 | C10 | 5 | △ | |
| 315 | Mirror angle adjusting pin | 1 | C3-1 | 6a, 6b | △ | |

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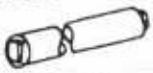
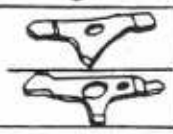
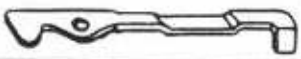
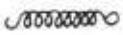
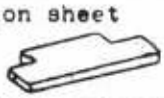
| No. of Part | Name and Shape | Pcs. per Unit | No. of Subassembly | Ref. Fig. No. | Term of Sale | Remarks |
|---|---|---|---|---|---|---|
| 31FB-316-1 | Mirror angle adjusting lever | 1 | C3-1 | 6a, 6b | △ | |
| 317 | Large lever axle | 2 | TNC1 | 4, 4a 6a, 6b 9, 9b | ○ △ | |
| 318 | Left coupling lever pin | 1 | C5-1 | 5 | △ | |
| 319 | Coupling lever shaft  | 1 | C4 | 5, 6a 6b | △ | |
| 320 | Right coupling lever | 1 | C4 | 6, 6a 6b | △ | |
| 321 | Mirror up lever | 1 | C8 | 6 | △ | |
| 322 | Mirror down lever | 1 | C7 | 6, 6a 6b | △ | |
| 323 | Mirror down lever sleeve | 1 | C7 | 6 | △ | |
| 324 | Down lever axle | 1 | TNC1 | 6 | ○ △ | |
| 325 | Mirror up spring retainer | 1 | C8 | 6 | △ | |
| 326 | Spring retainer | 1 | C7 | 6 | △ | |
| | | | | | | |
| 328 | Mirror up holding lever | 1 | B10 | 9, 9b | △ | |
| 329 | Mirror up holding lever base | 1 | B10 | 9, 9b 10, 10a | △ | |
| 330 | Mirror up holding lever axle | 2 | B10 C3-1 | 6a, 6b 9, 9b | △ | |

| No. of Part | Name and Shape | Pcs. per Unit | No. of Subassembly | Ref. Fig. No. | Term of Sale | Remarks |
|---|---|---|---|---|---|---|
| 31FB-331 | Set lever axle | 1 | TNC1 | 6a, 6b | ○ △ | |
| 332 | Set lever | 1 | TNC1 | 5, 6a 6b | ○ △ | |
| 333 | Coupling lever  | 1 | TNC1 | 6a | ○ △ | |
| ⚠ 333-1 | | | C25 | 6b, 6c | | Modified |
| 334 | Charge lever | 1 | | 4, 4a 9, 9b | ○ | |
| 335-1 | Left coupling lever | 1 | C5-1 | 5, 6a 6b | △ | |
| 336 | Signal lever  | 1 | TNC1 | 5, 6a 6b | ○ △ | |
| 337 | Mirror angle adjusting base plate | 1 | C3-1 | 6a, 6b | △ | |
| 338-1 | Aperture button spring | 1 | TNC1 | 5 | ○ △ | |
| 339-1 | Mirror cushion spring | 1 | C3-1 | 6a, 6b | ○ △ | |
| 340 | Aperture lever spring | 1 | TNC1 | 5 | ○ △ | |
| 341 | Mirror up spring | 1 | TNC1 | 6 | ○ △ | |
| 342 | Mirror down spring  | 1 | TNC1 | 6 | ○ △ | |
| 343 | Lever cushion | 1 | TNC1 | 6, 6a 6b | ○ △ | |
| | | | | | | |
| 345 | Mirror up cushion sheet  | 1 | TNC1 | 6a, 6b | ○ △ | |

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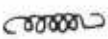
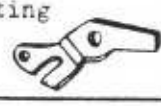
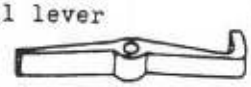
| No. of Part | Name and Shape | Pcs. per Unit | No. of Subassembly | Ref. Fig No. | Term of Sale | Remarks |
|---|---|---|---|---|---|---|
| 31FB-346 | Mirror shaft collar (right) | 1 | TNC1 | 6a, 6b | ○ △ | |
| 347 | Set lever spring | 1 | TNC1 | 6a, 6b | ○ △ | |
| ~~△ 348~~ | ~~Light-baffle plate~~ | ~~1~~ | ~~TNC1~~ | ~~6a~~ | ~~○ △~~ | Disused |
| 349 | Mirror up holding lever spring | 1 | B10 | 9, 9b | ○ △ | |
| | | | | | | |
| 356 | Manual aperture button | 1 | TNA1 | 2, 2a | ○ △ | |
| 357-1 | Eye guard | 1 | A2-1 | 2, 2a | ○△ | |
| 358 | Eye guard holder | 1 | TNA1 | 2, 2a | △ | |
| | | | | | | |
| 361-1 | Condenser, prism box | 1 | | 5a, 5b | ○ | |
| 362-1 | Condenser retainer | 1 | | 5a, 5b | ○ | |
| | | | | | | |
| 364 | Prism holding spring  | 2 | | 5a, 5b | ○ | |
| 365 | Prism holder | 1 | | 5a, 5b | ○ | |
| 367 | Prism holder sheet | 1 | | 5a, 5b | ○ | |

| No. of Part | Name and Shape | Pcs. per Unit | No. of Subassembly | Ref. Fig No | Term of Sale | Remarks |
|---|---|---|---|---|---|---|
| 31FB-368 | Coupling lever pin (right) | 1 | C4 | 6 | △ | |
| 369 | Aperture connecting lever  | 1 | C9 | 5 | △ | |
| 370 | Aperture lever axle | 1 | TNC1 | 5 | ○△ | |
| 371 | Aperture lever spring pin | 1 | C9 | 5 | △ | |
| 372 | Aperture lever adjusting pin | 1 | C10 | 5 | △ | |
| 373 | Eyepiece | 2 | TNC15 | 5a, 5b | ○△ | |
| | | | | | | |
| | | | | | | |
| 376 | Side signal lever  | 1 | TNC11 | 5 | ○△ | |
| 377-1 | Side signal lever base | 1 | TNC11 | 5 | △ | |
| 378 | Signal lever axle | 1 | TNC1 | 5 | ○△ | |
| 379 | Signal lever shoulder screw | 1 | TNC1 | 5 | ○△ | |
| 380 | Manual aperture lever shoulder screw | 2 | TNC1 | 5 | ○△ | |
| 381 | Side signal lever base screw 1.7R - 1.8 | 1 | TNC1 | 5 | ○△ | |
| 382 | Manual aperture spring retainer | 1 | TNC1 | 5 | ○△ | |

| No. of Part | Name and Shape | Pcs. per Unit | No. of Subassembly | Ref. Fig No | Term of Sale | Remarks |
|---|---|---|---|---|---|---|
| 31FB-383 | Side signal lever axle | 1 | TNC11 | 5 | △ | |
| | | | | | | |
| 385 | Prism holding plate (left) | 1 | | 5a, 5b | ○ | |
| 386 | Prism holding plate (right) | 1 | | 5a, 5b | ○ | |
| | | | | | | |
| 388 | Signal lever stop plate | 1 | TNC1 | 5 | ○△ | |
| ⚠ ~~389~~ | ~~Set lever stopper~~ | ~~1~~ | ~~TNC1~~ | ~~6a~~ | ~~○△~~ | Disused |
| 390 | Tin foil | 1 | | 5a, 5b | ○ | |
| ⚠ ~~391~~ | ~~Tin foil~~ | ~~1~~ | | ~~5a~~ | ~~○~~ | Disused |
| 392 | Eyepiece lens holding spring | 1 | A2-1 | 2, 2a | ○△ | |
| 393 | Eyepiece light baffle | 1 | TNC15 | 5a, 5b | ○△ | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

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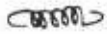
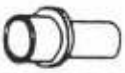
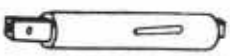
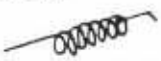
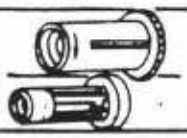
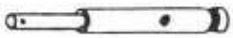
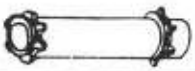
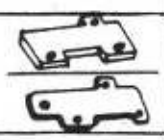
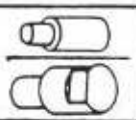
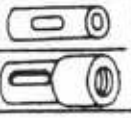
| No. of Part | Name and Shape | Pcs. per Unit | No. of Subassembly | Ref. Fig No | Term of Sale | Remarks |
|---|---|---|---|---|---|---|
| 31FB-401 | Take-up lever | 1 | B15 | 7 | △ | |
| 402 | Take-up lever retaining screw | 1 | | 7 | ○ | |
| 403 | Take-up lever retaining screw nut | 1 | | 7 | ○ | |
| 404 | Take-up lever spring washer | 1 | | 7 | ○ | |
| 405 | Take-up lever pin | 1 | B15 | 7 | △ | |
| 406 | Take-up lever tube | 1 | | 7 | ○ | |
| 407 | Release cam pin | 1 | B6-1 | 9a | △ | |
| 408 | Meter contact cam ring | 1 | | 7 | ○ | |
| | | | | | | |
| 413-1 | Contact claw releasing cam | 1 | B6-1 | 9a | △ | |
| 414-1 | Cam intermediate plate | 1 | B22 | 9a | △ | |
| 415-1 | Lever pawl cam | 1 | | 9a | ○ | |
| 416 | Take-up lever intermediate base | 1 | | 9a | ○ | |
| 417-1 | Cam contact claw guide plate | 1 | | 9a | ○ | |
| 418 | Stopper plate | 1 | B5 | 9a | △ | |

| No. of Part | Name and Shape | Pcs. per Unit | No. of Subassembly | Ref. Fig. No. | Term of Sale | Remarks |
|---|---|---|---|---|---|---|
| 31FB-419 | Stopper | 1 | B5 | 9a | △ | |
| 420 | Stopper spring  | 1 | B5 | 9a | ○△ | |
| 421 | Stopper axle | 1 | B5 | 9a | △ | |
| 422 | Take-up gear shaft  | 1 | B3-1 | 9a | △ | |
| 423 | Take-up gear | 1 | B4 | 9a | △ | |
| 424 | Advancing cam | 1 | B4 | 9a | △ | |
| 425-1 | Idle gear A | 1 | B3-1 | 9a | △ | |
| 426-1 | Idle gear B | 1 | B3-1 | 9a | △ | |
| 427-1 | Idle gear C | 1 | B3-1 | 9, 9a 9b | △ | |
| 428-1 | Idle gear C axle | 1 | B3-1 | 9, 9a 9b | △ | |
| 429 | Spool upper gear | 1 | | 9a | ○ | |
| 430 | Take-up shaft  | 1 | B1 | 9, 9a 9b | △ | |
| 431 | Lever return spring  | 1 | B1 | 9, 9b | △ | |
| 432 | Spool  | 1 | | 9 | ○ | |
| ▲432-1 | | | | 9b, 9c | | Modified |
| 433 | Spool spring | 1 | | 9a | ○ | |

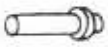
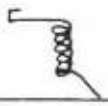
Revision-1 ▲x1

| No. of Part | Name and Shape | Pcs. per Unit | No. of Subassembly | Ref. Fig No | Term of Sale | Remarks |
|---|---|---|---|---|---|---|
| 31FB-434 | Spool collar | 1 | | 9a | ○ | |
| 435 | Take-up shaft bearing | 1 | | 9, 9b | ○ | |
| 436 | Sprocket upper gear | 1 | | 9, 9a 9b | ○ | |
| 437-1 | Sprocket shaft  | 1 | | 9, 9b | ○ | |
| 438 | Sprocket  | 1 | | 9, 9b | ○ | |
| 439 | Release button shaft spring | 2 | | 9, 9b | ○ | |
| 440 | Rewind button | 1 | B17 | 9, 9b | △ | |
| 441 | Rewind button guide plate | 1 | B17 | 9, 9b 10, 10a | △ | |
| 442 | Pawl collar | 1 | B3-1 | 9a | ○ | |
| 443 | Pawl | 1 | B3-1 | 9a | ○ | |
| 444 | Pawl spring | 1 | B3-1 | 9a | ○ | |
| 445 | Sprocket shaft bearing | 1 | | 9, 9b | ○ | |
| 446 | Rack retaining plate  | 1 | | 9, 10 | ○ | |
| ▲ 446-1 | | | | 9b, 9c 10a | | Modified |
| 447 | Rack | 1 | B9 | 9, 9b 10, 10a | △ | |
| 448 | Charge pin  | 1 | B9 | 9 | △ | |
| ▲ 448-1 | | | B9-1 | 9b, 9c | | Modified |

Revision-1 ▲×2

| No. of Part | Name and Shape | Pcs. per Unit | No. of Subassembly | Ref. Fig. No. | Term of Sale | Remarks |
|---|---|---|---|---|---|---|
| 31FB-449 | Rack coupling pin | 1 | B9 | 9, 9b | △ | |
| 450 | Rack coupling lever | 1 | B9 | 9, 9b 10, 10a | △ | |
| 451 | Take-up stroke cam pin | 1 | B2 | 9, 9b | △ | |
| 452 | A.R lever spring | 1 | | 9, 9b | ○ | |
| 453 | A.R lever release cam | 1 | | 9, 9b | ○ | |
| 454 | A.R lever | 1 | | 9, 9b 10, 10a | ○ | |
| 455 | Take-up stroke cam | 1 | B2 | 9, 9b 10, 10a | △ | |
| 456-1 | Film counter base metal | 1 | B11-1 | 7, 8 | △ | |
| 457-1 | Take-up shaft base metal | 1 | B3-1 | 9a | △ | |
| 458 | Release button cover ring | 1 | TNA1 | 2 | △ | |
| ⚠ 458-1 | | | TNA1-1 | 2a | | Modified |
| 459 | Release button  | 1 | TNA1 | 2 | ○△ | |
| ⚠ 459-1 | | | TNA1-1 | 2a | | Modified |
| 460 | Release inner rod | 1 | | 2, 2a 9, 9b | ○ | |
| 461 | Double exposure preventing lever collar | 1 | B8 | 9, 9b | △ | |
| 462 | Double exposure preventing lever | 1 | B8 | 7, 9 9b | △ | |
| 463 | Cam contact claw | 1 | B7 | 9a | △ | |

Revision-1 ⚠×2

| No. of Part | Name and Shape | Pcs. per Unit | No. of Subassembly | Ref. Fig No. | Term of Sale | Remarks |
|---|---|---|---|---|---|---|
| 31FB-464 | Cam contact claw collar | 1 | B7 | 9a | △ | |
| 465 | Claw shaft  | 1 | B3-1 | 9a | △ | |
| 466 | Claw spring  | 1 | | 9a | ○ | |
| 467 | Claw washer | 1 | B7 | 9a | △ | |
| 468 | Sprocket spring | 1 | | 9, 9b | ○ | |
| 469 | Release shaft | 1 | B8 | 9, 9b | △ | |
| 470 | B-action lever | 1 | | 9, 9b | ○ | |
| 471 | See-saw lever | 1 | | 9, 9b | ○ | |
| 472 | Eccentering pin | 1 | B22 | 9a | △ | |
| 473 | Adjusting pin washer | 1 | B22 | 9a | △ | |
| | | | | | | |
| 476 | Idle gear shaft bearing | 1 | B3-1 | 9a | △ | |
| | | | | | | |
| | | | | | | |
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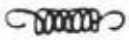
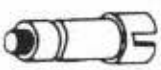
| No. of Part | Name and Shape | Pcs. per Unit | No. of Subassembly | Ref. Fig No. | Term of Sale | Remarks |
|---|---|---|---|---|---|---|
| 31FB-501-1 | Film counter scale | 1 | B13-1 | 8 | △ | |
| 502 | Counter ratchet wheel | 1 | B13-1 | 8 | △ | |
| 503 | Counter ratchet boss | 1 | B13-1 | 8 | △ | |
| 504 | Counter index plate | 1 | B11-1 | 8 | ○△ | |
| 505 | Counter scale shaft | 1 | B11-1 | 8 | △ | |
| 506 | Counter spring | 1 | B11-1 | 8 | ○△ | |
| 507 | Counter stop pin | 1 | B11-1 | 8 | △ | |
| 508-1 | Counter adjusting pin | 1 | B19 | 8 | △ | |
| 509-1 | Ratchet advancing lever A | 1 | B19 | 8 | △ | |
| 510-1 | Film counter release lever | 1 | B11-1 | 8 | △ | |
| 511 | Film counter release lever spring  | 1 | B11-1 | 8 | ○△ | |
| 512-1 | Film counter release lever axle | 1 | B11-1 | 8 | △ | |
| 513-1 | Ratchet advancing B lever | 1 | B20 | 8 | △ | |
| 514 | Ratchet advancing B lever boss | 1 | B20 | 8 | △ | |
| 515 | Ratchet advancing B lever shaft | 3 | B20 B11-1 | 8 | △ | |

| No. of Part | Name and Shape | Pcs. per Unit | No. of Subassembly | Ref. Fig. No. | Term of Sale | Remarks |
|---|---|---|---|---|---|---|
| 31FB-516 | Advancing B lever spring | 1 | B11-1 | 8 | ○ △ | |
| 517 | Advancing pawl spring | 1 | B11-1 | 8 | ○ △ | |
| 518 | Advancing pawl | 1 | B11-1 | 8 | ○ △ | |
| 519 | Ratchet locking pawl | 1 | B21 | 8 | ○ △ | |
| 520 | Ratchet locking pawl spring | 1 | B11-1 | 8 | ○ △ | |
| 521 | Ratchet locking pawl pin | 1 | B21 | 8 | △ | |
| 522-1 | Counter scale window | 1 | TNA1 | 2, 2a | ○ △ | |
| 523-1 | Advancing lever eccentric axle | 1 | B11-1 | 8 | ○ △ | |
| 524-1 | Advancing A lever washer | 1 | B11-1 | 8 | ○ △ | |
| 525 | Counter scale window frame | 1 | TNA1 | 2, 2a | △ | |
| 526 | Adjusting pin | 1 | B11-1 | 8 | △ | |
| 551-1 | Rewinding shaft bearing | 1 | B18-1 | 7 | ○ △ | |
| 552-1 | Rewinding shaft  | 1 | B18-1 | 7 | ○ △ | |
| 553 | Rewinding shaft click spring | 1 | B18-1 | 7 | ○ △ | |
| 554 | Rewinding shaft nut | 1 | | 2, 7 2a | ○ | |

| No. of Part | Name and Shape | Pcs. per Unit | No. of Subassembly | Ref. Fig No. | Term of Sale | Remarks |
|---|---|---|---|---|---|---|
| 31PB-555 | Rewind knob | 1 | | 7 | ○ | |
| 556 | Rewind lever | 1 | B16 | 7 | △ | |
| 557 | Rewind lever knob shaft | 1 | B16 | 7 | △ | |
| 558 | Rewind lever knob | 1 | B16 | 7 | △ | |
| 559 | Rewind lever spring | 1 | | 7 | ○ | |
| 560 | Counter scale shaft washer | 1 | B11-1 | 8 | ○ △ | |
| | | | | | | |
| | | | | | | |
| 562 | Rewind shaft washer | 1 | | 7 | ○ | |
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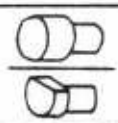
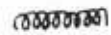
| No. of Part | Name and Shape | Pcs. per Unit | No. of Subassembly | Ref. Fig. No. | Term of Sale | Remarks |
|---|---|---|---|---|---|---|
| 31FB-701 | Back plate | 1 | E1 | 12 | △ | |
| ⚠ 701-1 | Pressure plate | | E1-1 | 12a | | Modified |
| 702 | Pressure plate | 1 | E2 | 12, 12a | △ | |
| 703 | Pressure plate spring | 1 | E2 | 12, 12a | △ | |
| 704 | Pressure plate stud | 2 | E2 | 12, 12a | △ | |
| 705 | Pressure plate spring holder pin | 4 | E1 | 12, 12a | △ | |
| 706 | Back plate hinge | 1 | E1 | 11, 12 12a | ○△ | |
| 707 | Latch retaining plate | 1 | E1 | 12 | △ | |
| ⚠ 707-1 | | | E1-1 | 12a | | Modified |
| 708 | Latch | 1 | | 11 | ○ | |
| 709 | Latch cover | 1 | | 11 | ○ | |
| 710 | Hinge shaft | 1 | E1 | 12, 12a | ○△ | |
| 711 | Latch rivet  | 2 | E1 | 12 | △ | |
| ⚠ 711-1 | | | E1-1 | 12a | | Modified |
| 712 | Latch slide guide | 2 | | 11 | ○ | |
| 713 | Film cartridge spring rivet | 2 | E1 | 12, 12a | △ | |
| 714 | Latch spring  | 1 | | 11 | ○ | |
| 715 | Film cartridge spring | 1 | E1 | 12, 12a | △ | |

Revision-1 ⚠×3

| No. of Part | Name and Shape | Pcs. per Unit | No. of Subassembly | Ref. Fig No. | Term of Sale | Remarks |
|---|---|---|---|---|---|---|
| 31FB-801 | Tripod socket screw 2R - 3 | 16 | TNC1 | 5, 7 8, 9a 9b, 9 | ○△ | |
| 802 | Shutter screw | 1 | | 4, 4a 10, 10a | ○ | |
| | | | | | | |
| 804 | Bottom plate screw 1.7Q - 2.5 | 5 | | 11 | ○ | |
| 805 | Bayonet set screw 2R - 3.5 | 4 | | 3, 3a | ○ | |
| | | | | | | |
| 807 | Bayonet spring screw 1.7R - 1.8 | 6 | TND5 | 3, 3a | ○△ | |
| 808 | Index plate screw 1.4T - 1.5 | 1 | B11-1 | 8 | ○△ | |
| 809 | Light baffle plate screw 2R - 2 | 1 | TNC1 | 6a | ○△ | |
| ▲ 809-1 | | | TNC1-1 | 6b, 6c | △ | Modified |
| 810 | Front plate screw | 5 | | 5, 6 | ○ | |
| 811 | Bayonet screw | 4 | | 3, 3a | ○ | |
| 812 | Locking pawl shaft screw | 1 | B3-1 | 9a | ○△ | |
| 813 | Take-up shaft bearing screw | 5 | TNC1 | 5, 9 9b | ○△ | |
| 814 | Sprocket screw | 1 | | | ○ | |
| 815 | Take-up shaft fastening screw | 1 | | 9, 9b | ○ | |

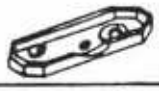
Revision-1 ▲x1

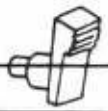
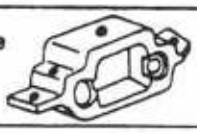
| No. of Part | Name and Shape | Pcs. per Unit | No. of Subassembly | Ref. Fig No | Term of Sale | Remarks |
|---|---|---|---|---|---|---|
| 31FB-816 | B-action lever screw 1.4R - 3 | 2 | | 9, 9b | ○ | |
| 817 | Advancing cam stop pin | 1 | B4 | 9a | △ | |
| ⚠ ~~818~~ | ~~A-gear pin~~ | ~~3~~ | ~~TND1~~ | ~~3~~ | ~~△~~ | Disused |
| 819 | Take-up shaft pin  SP1 - 4 | 1 | | 9a | ○ | |
| 820 | Releasing shaft pin  SP1 - 6 | 1 | B8 | 9, 9b | ○△ | |
| 821 | Rewind lever pin  SP1 - 8 | 1 | | 7 | ○ | |
| 822 | See-saw lever pin  SP1.6 - 8 | 1 | | 9, 9b | ○ | |
| | | | | | | |
| 824 | Shutter attaching nut 2N - 1.5 | 1 | | 4, 4a | ○ | |
| 825 | Rack holder screw 2Q - 3.5 | 3 | | 9, 9b | ○ | |
| 826 | Latch cover screw | 2 | | 11 | ○ | |
| 827 | Aperture lever shaft washer | 3<br>⚠ 4 | TNC1 | 5, 6a 6b, 6c 9, 9b | ○△ | <br>Modified |
| 828 | Mirror angle adjusting plate screw 2Q - 3.5 | 2 | TNC1 | 6a, 6b | ○△ | |
| 829<br>⚠ 829-1 | Shutter dial stopper screw 2R - 2 | 2 | <br>TNC1-1 | 3<br>3a | ○ | <br>Modified |
| ⚠ ~~830~~ | ~~Shutter button guide screw~~ 1.4R - 1.5 | ~~1~~ | ~~TNA1~~ | ~~2~~ | ~~○△~~ | Disused |

Revision-1 ⚠×4

| No. of Part | Name and Shape | Pcs. per Unit | No. of Subassembly | Ref. Fig. No. | Term of Sale | Remarks |
|---|---|---|---|---|---|---|
| 31FB-831 | Focus adjusting washer | 5 | | 5a, 5b | ○ | |
| 832 | Prism box screw 2R - 4 | 3 | | 5a, 5b | ○ | |
| 833-1 | Sprocket shaft pin SP1.6 - 6 | 1 | | 9, 9b | ○ | |
| 835 | E-ring | 4 | B11-1 TNC1 | 6, 8 | ○△ | |
| 836 | Releasing shaft E-ring | 1 | | 9, 9b | ○ | |
| | | | | | | |
| 837 | Sprocket shaft washer | 1 | | 9, 9b | ○ | |
| 838 | Film counter release lever washer | 1 | B11-1 | 8 | ○△ | |
| 841 | Mirror down lever washer | 1 | TNC1 | 6, 10 10a | ○△ | |
| 842 | Shutter spring washer | 1 | | 4, 4a | ○ | |
| 843 | Eyepiece frame screw | 2 | | 5a, 5b | ○ | |
| | | | | | | |
| 845 | Rack adjusting washer | 3 | | 9, 9b | ○ | |
| | | | | | | |
| 847 | Manual aperture lever washer | 2 | TNC1 | 5 | ○△ | |

| No. of Part | Name and Shape | Pcs. per Unit | No. of Subassembly | Ref. Fig. No. | Term of Sale | Remarks |
|---|---|---|---|---|---|---|
| 31FB-849 | Back focus adjusting washer | 4 | | 4, 4a | ○ | |
| 850 | Advancing A lever screw | 1 | B11-1 | 8 | ○△ | |
| 851 | Shutter washer | 1 | | 4, 4a | ○ | |
| 852 | Shutter screw | 2 | | 4, 4a | ○ | |
| | | | | | | |
| G1-1 | Mirror | 1 | TNC1 | 6a, 6b | ○△ | |
| G2-1 | Fresnel | 1 | | 5a, 5b | ○ | |
| G3-1 | Condenser lens | 1 | | 5a, 5b | ○ | |
| G4-1 | Prism | 1 | | 5a, 5b | ○ | |
| G5 | Eyepiece lens | 1 | C16 | 5a, 5b | △ | |
| G6 | " | 1 | C16 | 5a, 5b | △ | |
| G7-1 | Eyepiece dust proof glass | 1 | A2-1 | 2, 2a | ○△ | |
| | | | | | | |
| G11 | Light acceptance fresnel lens | 2 | TNC15 | 5a, 5b | ○△ | |
| | | | | | | |

| No. of Part | Name and Shape | Pcs. per Unit | No. of Subassembly | Ref. Fig. No. | Term of Sale | Remarks |
|---|---|---|---|---|---|---|
| 31F2B-T4 | Bottom cover  | 1 | | 10, 10a | ○ | |
| ▲ T21 | Earth terminal plate | ~~1~~ | ~~TNC1~~ | 4, 6a ~~13~~ | ~~○△~~ | Disused |
| T32 | Earth piece | 1 | TB14 | 4, 13 4a, 13a | ○△ | |
| T36 | Meter window cover | 1 | TNA1 | 2, 2a | ○△ | |
| T202 | Bayonet | 1 | | 3, 3a | ○ | |
| T221-1 | Resistor brush | 1 | TND8 | 3, 3a 13a | △ | |
| T222 | Brush | 1 | TND2 | 3, 13 3a, 13a | ○△ | |
| T224 | Resistor | 1 | TND2 | 3, 13 3a, 13a | ○△ | |
| T225 | Conductive plate | 1 | TND5 | 3, 13 3a, 13a | ○△ | |
| T226 | Brush rivet | 3 | TND2 | 3, 3a | ○△ | |
| | | | | | | |
| T234 | Resistor base plate | 1 | TND2 | 3, 13 3a, 13a | ○△ | |
| T237 | Click spring screw | 1 | TND5 | 3, 3a | ○△ | |
| | | | | | | |
| | | | | | | |

| No. of Part | Name and Shape | Pcs. per Unit | No. of Subassembly | Ref. Fig. No. | Term of Sale | Remarks |
|---|---|---|---|---|---|---|
| 31F2B-T350 | Mirror up axle | 1 | TNC1 | 6 | ○△ | |
| T351 | Mirror up button axle | 1 | TC6 | 6 | △ | |
| T352 | Axle holder | 1 | TC6 | 6 | △ | |
| T353 | Mirror up lever | 1 | TNC1 | 6 | ○△ | |
| T354 | Mirror up button | 1 | TC6 | 6 | △ | |
| ~~(T354-1)~~ | ~~Mirror up button~~  | ~~1~~ | | ~~6~~ | ○ | TC6 |
| T355 | Mirror up lever spring | 1 | TNC1 | 6 | ○△ | |
| | | | | | | |
| T359-2 | Eyepiece frame  | 1 | TNC15 | 5a, 5b | △ | |
| | | | | | | |
| T366 | Meter window cover | 1 | TNC1 | 5a, 5b | ○△ | |
| | | | | | | |
| | | | | | | |
| T409 | Contact insulating plate | 2 | TB12 | 7 | △ | |
| T410 | Contact retaining plate | 1 | TB12 | 7 | △ | |

| No. of Part | Name and Shape | Pcs. per Unit | No. of Subassembly | Ref. Fig No. | Term of Sale | Remarks |
|---|---|---|---|---|---|---|
| 31F2B-T411 | Contact A | 1 | TB12 | 7, 13 13a | △ | |
| T412 | Contact B | 1 | TB12 | 7, 13 13a | △ | |
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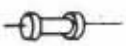
| T603 | Tube | 1 | | 13, 13a | ○ | |
| | | | | | | |
| T607 | Battery cap | 1 | | 10, 10a | ○ | |
| T608 | Battery case | 1 | TB14 | 10, 10a | △ | |
| T609 | Battery spring plate | 1 | TB14 | 10, 10a | △ | |
| T610 | Insulating plate | 1 | TB14 | 10, 10a | △ | |
| T611 | Insulating washer | 1 | TB14 | 10, 10a | △ | |
| T612 | Tip A | 1 | TB14 | 10, 10a | △ | |

| No. of Part | Name and Shape | Pcs. per Unit | No. of Subassembly | Ref. Fig. No. | Term of Sale | Remarks |
|---|---|---|---|---|---|---|
| 31F2B-T613 | Tip rivet | 1 | TB14 | 10, 10a | ○△ | |
| | | | | | | |
| T615 | Mercury battery | 1 | | 13, 13a | ◎ | |
| T616 | Resistor 40Ω, 50Ω, 60Ω, 70Ω | 1 | TNC17 | 5a, 5b 13, 13a | ○△ | |
| T617 | Meter window | 1 | TNA1 | 2, 2a | ○△ | |
| T618 | Lead wire (red) D4233  | 1 | TB14 | 4, 4a 10, 10a 13, 13a | ○△ | |
| T619 | "  | 1 | TB14 | 10, 10a 13, 13a | ○△ | |
| T620 | Lead wire (black) D4231  | 1 | TB12 | 7, 13 13a | ○△ | |
| T621 | Lead wire (green) D4236  | 1 | TND5 | 13, 13a | ○△ | |
| | | | | | | |
| T623 | Meter resustor  1KΩ, 2KΩ, 3KΩ | 1 | | 13, 13a | ○ | |
| T624 | Tip B | 1 | TB14 | 10, 10a 13, 13a | △ | |
| T625 | Cord tube | 1 | | 13, 13a | ○ | |
| ▲ T626 | Resistor 250KΩ, 400KΩ, 750KΩ | 1 | | 5b, 13a | ○ | Added |
| T628 | Lead wire (yellow) D4235  | 1 | TB14 | 10, 10a 13, 13a | ○△ | |

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| No. of Part | Name and Shape | Pcs. per Unit | No. of Subassembly | Ref. Fig No. | Term of Sale | Remarks |
|---|---|---|---|---|---|---|
| 31F2B-T629 | Lead wire (black) D4Z31 | 1 | TB12 | 7, 13 13a | ○△ | |
| T630 | Print | 1 | TNC17 | 5a, 5b 13, 13a | ○△ | |
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| | | | | | | |
| | | | | | | |
| T809 | Earth terminal screw 2R - 2 | 2 | TNC1 | 6, 6a 6b | ○△ | |
| T813 | Meter screw | 2 | | 5a, 5b | ○ | |
| T816 | Meter contact screw 1.4R - 3 | 1 | | 7 | ○ | |
| | | | | | | |
| T823 | Mirror up coupling shaft pin TP1 - 6 | 1 | TNC1 | 6 | ○△ | |
| T827 | Mirror up lever washer | 2 | TNC1 | 6 | ○△ | |
| | | | | | | |
| T839 | Battery case screw 1.4Q - 2 | 1 | | 10, 10a | ○ | |

| No. of Part | Name and Shape | Pcs. per Unit | No. of Subassembly | Ref. Fig No | Term of Sale | Remarks |
|---|---|---|---|---|---|---|
| 31F2B-T840 | Earth piece screw | 1 | | 4, 4a | ○ | |
| | | | | | | |
| T846 | Printed circuits plate screw | 3 | | 5a, 5b | ○ | |
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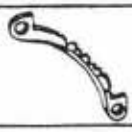
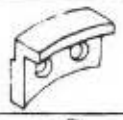
| No. of Part | Name and Shape | Pcs. per Unit | No. of Subassembly | Ref. Fig. No. | Term of Sale | Remarks |
|---|---|---|---|---|---|---|
| 31F3B-902 | Front cover | 1 | | 2, 2a 3, 3a 5a, 5b | ○ | |
| 903 | Top cover | 1 | TNA1 | 2, 2a | △ | |
| 905 | Bayonet base | 1 | TND5 | 3 | △ | |
| ⚠ 905-1 | | | TND5-1 | 3a | | Modified |
| 906 | Front plate | 1 | TNC1 | 6, 6a | △ | |
| ⚠ 906-1 | | | | | | Modified |
| ⚠ 906-2 | | | TNC1-1 | 6b, 6c | | Modified |
| 907 | Diaphragm coupling ring | 1 | TND3 | 3 | △ | |
| ⚠ 907-2 | | | TND3-1 | 3a | | Modified |
| 908 | Max. aperture scale ring | 1 | TND2 | 3, 3a | △ | |
| 909 | Shutter A gear ring | 1 | TND1 | 3 | △ | |
| ⚠ 909-1 | | | TND1-1 | 3a, 13 13a | | Modified |
| 910 | Shutter speed scale ring | 1 | TND1 | 3, 3a | △ | |
| 911 | Resistor brush ring | 1 | TND8 | 3, 3a 13, 13a | △ | |
| 912 | Ratchet release base plate | 1 | TNC18 | 2, 2a | △ | |
| 913 | Lever retainer | 1 | TNC18 | 2, 2a | △ | |
| 914 | Ratchet release lever | 1 | TNC18 | 2, 2a | △ | |
| 915 | Ratchet  | 1 | TND2 | 3, 3a | ○△ | |
| 916 | Ratchet claw | 1 | TND3 | 3, 3a | ○△ | |
| 917 | Max. aperture scale stopper | 1 | TND2 | 3, 3a | ○△ | |

| No. of Part | Name and Shape | Pcs. per Unit | No. of Subassembly | Ref Fig. No | Term of Sale | Remarks |
|---|---|---|---|---|---|---|
| 31F3B-918 | Rivet | 2 | TND2 | 3, 3a | ○△ | |
| 919 | Coupling stopper  | 1 | ⚠ ~~TND5~~ | 3, 3a | ○⚠ | |
| 920 | ASA index | 1 | TND8 | 3 | △ | |
| ⚠ 920-1 | | | TND8-1 | 3a | | Modified |
| 921 | Lever retaining axle | 1 | TNC18 | 2, 2a | △ | |
| 922 | Pin | 1 | TNC18 | 2, 2a | △ | |
| 923 | Ratchet release lever axle | 1 | TNC18 | 2, 2a | △ | |
| 924 | Pin | 2 | TNC18 | 2, 2a | △ | |
| | | ⚠ 1 | | | | Modified |
| 925 | Collar | 2 | | 5a, 5b | ○ | |
| 926 | Ratchet claw axle | 1 | TND3 | 3, 3a | ○△ | |
| 927 | Rivet | 2 | TND2 | 3, 3a | ○△ | |
| 928 | Coupling pin | 1 | TND3 | 3, 3a | △ | |
| 929 | Washer | 1 | TNC18 | 2, 2a | △ | |
| 930 | Name plate screw | 2 | | 2, 2a | ○ | |
| 931 | Screw | 2 | | 2, 2a | ○ | |
| 932 | Axle | 1 | TNC18 | 2, 2a | △ | |

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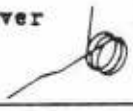
| No. of Part | Name and Shape | Pcs. per Unit | No. of Subassembly | Ref. Fig No. | Term of Sale | Remarks |
|---|---|---|---|---|---|---|
| 31F3B- | | | | | | |
| 934-1 | Name plate | 1 | | 2, 2a | ○ | |
| 935 | Lever spring | 1 | TNC18 | 2, 2a | ○△ | |
| 936 | Ratchet release lever spring  | 1 | TNC18 | 2, 2a | ○△ | |
| 937 | Spring stud | 2 | TND2<br>TND3 | 3, 3a | △ | |
| 938 | Shutter rivet | 3 | TND1 | 3, 3a | △ | |
| 939 | Spring | 1 | TND3<br>▲ TND3-1 | 3, 3a | ○<br>○△ | |
| 940 | Rivet | 2 | TND8 | 3, 3a | △ | |
| 941<br>▲ 941-1 | Ratchet claw spring | 1 | TND3<br>TND3-1 | 3<br>3a | △ | <br>Modified |
| 942 | ASA friction spring | 2 | | 3, 3a | ○ | |
| 943 | Brush rivet | 2 | TND8 | 3, 3a | △ | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| 947 | Light entrance diaphragm | 2 | TNC15 | 5a, 5b | ○△ | |

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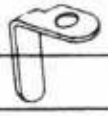
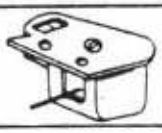
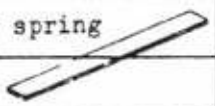
| No. of Part | Name and Shape | Pcs. per Unit | No. of Subassembly | Ref. Fig No. | Term of Sale | Remarks |
|---|---|---|---|---|---|---|
| 31F3B-948 | CdS | 2 | | 5a, 5b 13, 13a | ○ | |
| ~~△ 949~~ | ~~Dust baffle~~ | ~~1~~ | ~~TND3~~ | ~~3~~ | ~~○△~~ | Disused |
| 950 | Idle gear | 1 | TNC19 | 5 | △ | |
| 951 | Idle gear axle | 1 | TNC19 | 5 | △ | |
| 952 | Idle gear base plate | 1 | TNC19 | 5 | △ | |
| 953 | Shutter speed scale gear | 1 | TNC20 | 5 | △ | |
| 954 | Gear shaft | 1 | TNC20 | 5 | △ | |
| 955 | Winding shaft | 1 | TNC20 | 5 | △ | |
| 956 | Guide roller | 1 | TNC11 | 5 | △ | |
| △ 956-1 | | | TNC11-1 | | | Modified |
| 957 | Roller shaft | 1 | TNC11 | 5 | △ | |
| △ 957-1 | | | TNC11-1 | | | Modified |
| 958 | Connecting string | 1 | TNC21 | 5, 5a 5b | △ | |
| 959 | Barrel drum | 1 | TNC22 | 6 | △ | |
| 960 | Barrel arber | 1 | TNC22 | 6 | △ | |
| 961 | Main spring | 1 | TNC22 | 6 | ○△ | |
| 962 | Barrel holder plate | 1 | TNC22 | 6 | △ | |

Revision-1 △×3

| No. of Part | Name and Shape | Pcs. per Unit | No. of Subassembly | Ref. Fig No. | Term of Sale | Remarks |
|---|---|---|---|---|---|---|
| 31F3B-963 | **Shutter speed** scale plate | 1 | TNC21 | 5, 5a 5b, 6 | △ | |
| 964 | Fresnel mask | 1 | TNC23 | 5a, 5b | △ | |
| 965 | Down spring stud | 1 | TNC1 | 6 | ○△ | |
| 966 | Gear shaft bearing | 1 | TNC1 | 5 | ○△ | |
| ⚠ ~~967~~ | CdS retainer ~~(right)~~ | ~~1~~ | | ~~5a~~ | ~~○~~ | Disused |
| ⚠ ~~968~~ | CdS retainer ~~(left)~~  | ~~1~~ | | ~~5a~~ | ~~○~~ | Disused |
| 969 | Scale mirror | 1 | TNC1 | 5a, 5b 6a, 6b | ○△ | |
| 970 | Shutter speed scale mask | 1 | TNC23 | 5a, 5b | △ | |
| 971 | Meter  | 1 | TNC24 | 5a, 5b 13, 13a | △ | |
| 972 | Screw | 2 | ⚠ | 3, 3a | ○≙ | |
| 974 | Click spring | 1 | | 3, 3a | ○ | |
| 973 | Meter needle index | 1 | TNC24 | 5a, 5b | △ | |
| ⚠ ~~975~~ | Ratchet claw spring  | ~~1~~ | ~~TND3~~ | ~~3~~ | ~~△~~ | Disused |
| 976-1 | Washer | 2 | | 2, 2a | ○ | |
| 977 | ND filter | 2 | | 5a, 5b | ○ | |

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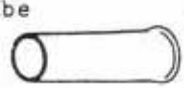
| No. of Part | Name and Shape | Pcs. per Unit | No. of Subassembly | Ref. Fig No | Term of Sale | Remarks |
|---|---|---|---|---|---|---|
| 31F3B-978 | **Shutter speed scale supporter** | 1 | TNC1 | 5a, 5b 6a, 6b | △ | |
| ~~△ 979~~ | Washer | ~~1~~ | | ~~2~~ | ~~○~~ | Disused |
| 980 | **Front cover screw** M1.7 - 3.5 | 2 | | 2a, 3a | ○ | |
| 1001 | **Shutter** | 1 | | 4, 4a 10, 10a | ○ | |
| △ 478 | Rack retainer collar | 1 | | 9c | ○ | Added |
| △ 479 | Spring | 1 | TNC1 | 6c | △ | Added |
| △ 480 | Lever axle | 1 | TNC1 | 6c | △ | Added |
| △ 481 | Lever base | 1 | TNC1 | 6c | △ | Added |
| △ 482 | Coupling lever pin | 1 | C25 | 6c | △ | Added |
| △ 483 | Spring stud | 1 | TNC1 | 6c | △ | Added |
| △ 484 | Lever | 1 | TNC1 | 6c | △ | Added |
| △ 485 | Rack retainer screw | 1 | | 9c | ○ | Added |
| △ 486 | Lever base | 1 | TNC1-1 | 6c | ○ | Added |
| △ 487 | Spool washer | 1 | | 9c | ○ | Added |
| △ 488 | Spool inner tube  | 1 | | 9c | ○ | Added |

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| Part No. 部品番号 | Name and Shape 名称および形状 | Pcs. per Unit 1台分個数 | Reference Subassembly No. 参照部組品番号 | Reference Fig. No. 参照図番 | Term of Sale 販売区分 | Remarks 備考 |
|---|---|---|---|---|---|---|
| ▲489 | Release screw | 1 | TNA1 | 2a | △ | Added |
| ▲855 | Bayonet screw | 4 | | 3a | ○ | Added |
| ▲856 | Release button screw | 2 | TNA1 | 2a | △ | Added |
| ▲981 | Spring stud pin | 1 | TNC18 | 2a | △ | Added |
| ▲982 | Earth terminal | 1 | TNC1 | 4a, 6b 6c, 13a | △ | Added |
| ▲983 | Light baffle | 1 | TNC1 | 6b, 6c | △ | Added |
| ▲984 | Cover plate | 1 | TNC1 | 6c | △ | Added |
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Added ▲×7

| | No. of Subassembly | Name | Pcs. per Unit | No. of Constituent Parts (*: Main parts) | Ref. Fig.No. | Remarks |
|---|---|---|---|---|---|---|
| Top cover | 31F3B - TNA1 | Top cover (TN) | 1 | 12, 15x2, 33, 38, 309 310-1, 356, 358, 458 459, 522-1, 525, ~~630~~ A *903, T36, T617 | 2 | |
| | 31FB - A2-1 | Eyeguard | 1 | *357-1, 392, G7-1 | 2 | |
| Body | 31FB - B1 | Take-up shaft | 1 | *430, 431 | 9, 9A | |
| | 31FB - B2 | Take-up stroke cam | 1 | 451, *455 | 9, 10 | |
| | 31FB - B3-1 | Take-up shaft base metal | 1 | 422, 425-1, 426-1, 427 -1, 428-1, 442, 443 444, *457-1, 465, 476 812 | 9A | |
| | 31FB - B4 | Take-up gear | 1 | *423, 424, 817 | 9A | |
| | 31FB - B5 | Stopper | 1 | *418, 419, 420, 421 | 9A | |
| | 31FB - B6-1 | Contact claw releasing cam | 1 | 407, *413-1 | 9A | |
| | 31FB - B7 | Cam contact claw | 1 | *463, 464, 467 | 9A | |
| | 31FB - B8 | Release shaft | 1 | 461, 462, *469, 820 | 9 | |
| | 31FB - B9 | Rack | 1 | *447, 448, 449, 450 | 9, 10 | |
| | 31FB - B10 | Mirror up holding lever | 1 | *328, 329, 330, 349 | 9 | |
| | 31FB - B11-1 | Film counter base metal | 1 | B13-1, B19, B20, B21 *456-1, 504, 505, 506 507, 510-1, 511, 512-1 515x2, 516, 517, 518 520, 523-1, 524-1, 526 560, 808, 835x3, 838 850 | 7 | |
| | 31F2B - TB12 | Meter switch | 1 | T409x2, T410, *T411 T412, T620, T629 | 7 | |
| | 31TB - B13-1 | Film counter scale | 1 | *501-1, 502, 503 | 8 | |
| | 31F2B - TB14 | Battery case | 1 | T32, *T608, T609, T610 T611, T612, T613, T618 T619, T624, T628 | 10 | |
| | 31FB - B15 | Take-up lever | 1 | *401, 405 | 7 | |

| | No. of Subassembly | Name | Pcs. per Unit | No. of Constituent Parts (*: Main parts) | Ref. Fig.No. | Remarks |
|---|---|---|---|---|---|---|
| Body | 31FB - B16 | Rewind lever | 1 | *556, 557, 558 | 7 | |
| | 31FB - B17 | AR button | 1 | *440, 441 | 9, 10 | |
| | 31FB - B18-1 | Rewind shaft | 1 | *551-1, 552-1, 553 | 7 | |
| | 31FB - B19 | Ratchet advancing A lever | 1 | 508-1, *509-1 | 8 | |
| | 31FB - B20 | Ratchet advancing B lever | 1 | *513-1, 514, 515 | 8 | |
| | 31FB - B21 | Ratchet locking pawl | 1 | *519, 521 | 8 | |
| | 31FB - B22 | Cam intermediate plate | 1 | *414-1, 472, 473 | 9A | |
| Front plate | 31F3B - TNC1 | Front plate (TN) | 1 | C2-2, C3-1, C4, C5-1 TC6, C7, C8, C9, C10 TNC11, C12, C13, C14-1 TNC19, TNC20, TNC22, 16 19, 34-1x2, 35, 37, 214 -1, 215, 216, 217, 218 223, 303, 306, 307, 308 312, 313-1, 317, 324 331, 332, 333, 336, 338 -1, 340, 341, 342, 343 345, 346, 347, ~~340~~ 370 378, 379, 380x2, 381 382, 388, ~~304~~ 801x3 809, 813x4, 827x2, 828 x2, 835, 841, 847x2 *906, 965, 966, 969 976, ~~421~~, T350, T353 T355, T366, T809x2 T823, T827x2, G1-1 | 6, 6A | |
| | 31FB - C2-2 | Mirror support | 1 | *301-2, 302-1x2, 304-1 305-1 | 6A | |
| | 31FB - C3-1 | Mirror angle adjusting lever | 1 | 315, 316-1, 330, *337 339-1 | 6A | |
| | 31FB - C4 | Coupling lever shaft | 1 | *319, 320, 368 | 5, 6A | |
| | 31FB - C5-1 | Left coupling lever | 1 | 318, *335-1 | 5, 6A | |
| | 31F2B - TC6 | Mirror up button | 1 | T351, T352, *T354 | 6 | |

| | No. of Subassembly | Name | Pcs. per Unit | No. of Constituent Parts (*: Main parts) | Ref. Fig.No. | Remarks |
|---|---|---|---|---|---|---|
| Front plate | 31FB - C7 | Mirror down lever | 1 | *322, 323, 326 | 6, 6A | |
| | 31FB - C8 | Mirror up lever | 1 | *321, 325 | 6 | |
| | 31FB - C9 | Aperture connecting lever | 1 | *369, 371 | 5 | |
| | 31FB - C10 | Aperture lever | 1 | *314, 372 | 5 | |
| | 31F3B - TNC11 | Side signal lever | 1 | 376, *377-1, 383, 956 957 | 5 | |
| | 31FB - C12 | BC gear | 1 | 229, 230, *233 | 5 | |
| | 31FB - C13 | D gear | 1 | *227, 231, 232 | 5 | |
| | 31FB - C14-1 | Self-timer lever shaft | 1 | *17-1, 18 | 5 | |
| | 31F3B - TNC15 | Eyepiece frame (TN) (including CdS) | 1 | C16, 31, 373x2, 393 947x2, *T359-2, G11x2 | 5A | |
| | 31FB - C16 | Eyepiece lens | 1 | G5, G6 | 5A | |
| | 31F3B - TNC17 | Printed circuits plate | 1 | T616, *T630 | 5A | |
| | 31F3B - TNC18 | Ratchet release base plate | 1 | *912, 913, 914, 921 922, 923, 924x2, 929 932, 935, 936 | 2 | |
| | 31F3B - TNC19 | Idle gear | 1 | 950, 951, *952 | 5 | |
| | 31F3B - TNC20 | Gear shaft | 1 | 953, *954, 955 | 5 | |
| | 31F3B - TNC21 | Shutter speed scale plate | 1 | 958, *963 | 5, 5A | |
| | 31F3B - TNC22 | Barrel drum | 1 | *959, 960, 961, 962 | 6 | |
| | 31F3B - TNC23 | Fresnel mask | 1 | *964, 970 | 5A | |
| | 31F3B - TNC24 | Meter | 1 | *971, 973 | 5A | |
| Mount | 31F3B - TND1 | Shutter A gear (TN) | 1 | ~~△ 918, △ 918x4,~~ *909, 910 938x3 | 3 | |
| | 31F3B - TND2 | Max. aperture scale ring | 1 | *908, 915, 917, 918x2 927x2, 937, T222, T224 T226x3, T234 | 3 | |
| | 31F3B - TND3 | Diaphragm coupling ring (TN) | 1 | *907, 916, 926, 928 937, 941, ~~△ 949, △ 975~~ | 3 | |

| | No. of Subassembly | Name | Pcs. per Unit | No. of Constituent Parts (*: Main parts) | Ref. Fig.No | Remarks |
|---|---|---|---|---|---|---|
| Mount | 31F3B - TND5 | Bayonet base (TN) | 1 | *905, T225, T621, 208 x3, 807x6, 919, 972x2 T237 | 3 | |
| | 31FB - D7-1 | Lens lock pin | 1 | 212, *213-1 | 6 | |
| | 31F3B - TND8 | Resistor brush ring | 1 | *911, 920, 940x2, 943 x2, T221-1 | 3 | |
| Back plate | 31FB - E1 | Back plate | 1 | 26, 39x2, *701, 705x4 706, 707, 710, 711x2 713x2, 715 | 12 | |
| | 31FB - E2 | Pressure plate | 1 | *702, 703, 704x2 | 12 | |

| No. of Subassembly | Name | Pcs. per Unit | No. of Constituent Parts (*: Main parts) | Ref. Fig.No. | Remarks |
|---|---|---|---|---|---|
| 31F3B - TNA1-1 | Top cover (TN) | 1 | 12, 15x2, 33, 38, 309 310-1, 356, 358, 458-1 459-1, 489, 522-1, 525 856, *903, T36, T617 | 2 | |
| 31FB - B9-1 | Rack | 1 | *447, 448-1, 449, 450 | 9, 10 | |
| 31F3B - TNC1-1 | Front plate (TN) | 1 | C2-2, C3-1, C4, C5-1 TC6, C7, C8, C9, C10 TNC11-1, C12, C13, C14 -1, TNC19, TNC20,TNC22 C25, 16, 19, 34-1x2,35 37, 214-1, 215, 216 217, 218, 223, 303,306 -2,307, 308, 312,313-1 317, 324, 331,332, 336 338-1, 340, 341, 342 343, 345, 346, 347,370 378, 379, 380x2, 381 382, 388, 479,480, 481 483, 484, 486, 801x3 809-1, 813x4, 827x2 828x2, 829-1x2,835,841 847x2, *906-2, 965,966 969,978, 982, 983, 984 T350, T353, T355, T366 T809x2, T823, T827x2 G1-1 | 6, 6A | |
| 31F3B - TNC11-1 | Side signal lever | 1 | 376, *377-1, 383 956-1, 957-1 | 5 | |
| 31F3B - TNC18-1 | Ratchet release base plate | 1 | *912, 913, 914, 921 922, 923, 924 929 932, 935, 936, 981 | 2 | |
| 31F3B - TND1-1 | Shutter A gear (TN) | 1 | *909-1, 910, 938x3 | 3 | |

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| No. of Subassembly | Name | Pcs. per Unit | No. of Constituent Parts (*: Main parts) | Ref. Fig.No. | Remarks |
|---|---|---|---|---|---|
| 31F3B - TND3-1 | Diaphragm coupling ring (TN) | 1 | *907-2, 916, 926, 928 937, 941-1, 939 | 3 | |
| 31F3B - TND5-1 | Bayonet base (TN) | 1 | *905-1, T225, T621 208x3, 807x6, T237 | 3 | |
| 31F3B - TND8-1 | Resistor brush ring | 1 | *911, 920-1, 940x2 943x2, T221-1 | 3 | |
| 31FB - E1-1 | Back plate | 1 | 26, 39x2, *701-1 705x4, 706, 707-1 710, 711-1x2, 713x2 715 | 12 | |
| 31F3B - C25 | Coupling lever | 1 | *333-1, 482 | 6A | |

# Nikkormat $FT_N$ Exposure Meter

## § 1. STANDARDS OF MAIN PARTS

### A) Resistance Characteristics of CdS Photo. Conductor #948

A - 1 Illumination - Resistance characteristics

| | 2 cd/m² | 64 cd/m² | 4096 cd/m² |
|---|---|---|---|
| Resistance | 75.0 - 54.5KΩ | 7.25 - 5.25KΩ | 0.570 - 0.435KΩ |

### B) Variable Resistor T224

| EV | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Upper Limit | KΩ ∞ | KΩ 13 | KΩ 5.0 | KΩ 2.35 | KΩ 1.25 | Ω 740 | Ω 445 | Ω 275 | Ω 170 | Ω 108 | Ω 71 | Ω 47 | Ω 32.5 | Ω 22.5 | Ω 16.2 |
| Lower Limit | 20 | 6.4 | 2.8 | 1.43 | Ω 165 | 525 | 315 | 200 | 124 | 80 | 53.5 | 36 | 24.5 | 17.5 | 13 |

### C) Meter #971

| | |
|---|---|
| Current when the needle comes to the center | 12.3±1μA |
| Swing angle | 10±2° |
| Internal resistance | about 3 KΩ |
| Torque | 0.2mg - cm/deg. or higher |

### D) Fixed Resistor

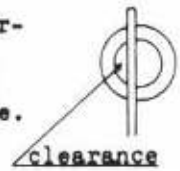
| | | |
|---|---|---|
| $R_1$ | T616 | 40,50,60,70,100Ω |
| $R_2$ | T626 | 250,400,750KΩ |
| $R_3$ | T623 | 1, 2, 3, 3.5, 4, 4.5, 5 KΩ |

## §2. TROUBLE CHART

| Trouble | Cause | Checking | Remedy |
|---|---|---|---|
| Pointer needle does not move. | 1.Batteries are not correctly deposited. | Open the battery chamber for checking | Make correction. |
| | 2.Drain on the batteries. | Check for correct voltage of batteries. | Replace the batteries. |
| | 3.Disconnection. (Not correctly soldered) | Check the circuit using the tester. | ●Make connection.<br>●Replace the disconnected part. |
| | 4.Contact on the batteries or switch is not good. | Check for correct functioning of #T608 and #T610. Check for sufficient conductivity of switch, using the tester. | ●Clean the contact.<br>●Replace the part.<br>●Correct the bending of the contact or replace it. |
| | 5.Short-circuit | Check the circuit, using the tester. | ●Replace or insulate the short-circuited part. |
| | 6.Moving part of meter is seized. | Meter needle does not move even when blown, or it stops at an indefinite position. | ●Remove dust.<br>●Replace the meter. |

| Trouble | Cause | Checking | Remedy |
|---|---|---|---|
| | 7. Moving part of meter is seized, when the meter is fitted to the camera. | The needle does not move, although it moves correctly in the meter before assembly. | ● Clean or replace the mirror housing window, condenser, pentaprism or meter |
| Unsteadiness of pointer needle indication. | 1. Disconnection (not always) | Check the circuit, using the tester. | ● Make connection.<br>● Replace the disconnected part. |
| | 2. Incorrect contact of variable resistor. (not always) | Check for correct pressure of contact brush.<br>The variable resistor is worn out. | ● Adjust the contact brush.<br>● Replace the part. |
| | of switch | Check for sufficient conductivity. | Correct the bending of the contact or replace it. |
| | of battery chamber | Check for correct functioning of #T608 and #T610. | Cleaning, correct bending or replacement. |
| | | | |

| Trouble | Cause | Checking | Remedy |
|---|---|---|---|
| | 3. Short-circuit. | Check the circuit, using the tester. | Insulate or replace the short-circuited part. |
| | 4. Moving part of meter is seized. | | ● Remove dust.<br>● Replace the meter. |
| | 5. Inadequate friction of meter needle. | The position of needle when set at EV9 differs too much from that obtained after the meter is once faced toward a brightness of EV15 and then returned to EV9. | Replace the meter. |
| | 6. Excessive slack of shutter dial. | Remarkable movement of needle within the range of the slack. | Adjust #227. |
| | 7. Unbalance of meter needle. | Indication changes over 0.3mm at the end of needle, according to the posture of the meter. | Replace the meter. |

| Trouble | Cause | Checking | Remedy |
|---|---|---|---|
| Too much difference between the indications by internal and external pointer needles. | | With the internal needle coincided with the index, see if the external one come to touch the index circle with no clearance on one side.   | Replace the meter. |
| Incorrect zero-position of pointer needle. | | Even when switched off, the needle does not go out of the frame. | Replace the meter. |
| Even with the cap put on, the needle moves. | | Set the needle to EV-3, put on the cap and switch on. The needle swings close up to the index. | Replace R . Choose a resistance high enough to get the needles within ± 1/2 step. |
| Pointer needle is swung out. | 1. The needle is adhered. | The needle moves normally when subjected to vibration. | Replace the meter. |
| | 2. Insufficient conductivity of the shunt circuit. | Check for correct contact of #T222. | Replace the part. |

| Trouble | Cause | Checking | Remedy |
|---|---|---|---|
| | 3. Short-circuit on the printed wiring plate. | Check short-circuit on the lead wire, resistor and soldering points. | Insulate the short-circuited part. |
| Inaccuracy of indication. | 1. Drain of batteries. | Insufficient swing of needle on the whole range. Check the voltage. | Replace the batteries. |
| | 2. Aging or the like of CdS, variable resistor meter, or fixed resistor. | Although the movement needle is normal, nigh accuracy is not obtained. Check every part individually. | Replace the part below standards. |
| Loosening of ASA ring lock. | #T203 or #T209 wears down. | ASA ring moves unintensionally. | Replace the part. |
| Incorrect click of ASA ring. | Notch on #T203 is worn out. #T236 is broken. | Stop-down measuring click does not operate securely or at all. | Replace the part. |

## § 3. DISASSEMBLING PROCEDURES OF THE EXPOSURE METER

1) Release #402, using a piece of rubber sheet to remove #403, #404 and #401. (Use the screw driver J11020)
Thereafter, remove #555 and #559 as well as #554 and #930. (Use the screw driver J11022)
Taking care of the synchro cord, push up the top plate of the camera gently and unsolder the parts.

2) Meter
Draw out #551-1.(Use the screw driver J11021)
Unscrew #T813 (meter setting screws)
Put it out carefully, taking care of the meter pointer needle and of the index.

3) Switch
Remove #T816.

4) Printed wiring plate.
Remove #T846.

5) Variable resistor
Unscrew four screws #811.
Holding #910 (shutter ring), remove #213 and #214, to detach the whole bayonet part. Then , remove #910, #907-1 and #908 from the bayonet in this order.

Note 1. When detaching the bayonet part from the front plate, take caution not to disconnect #T621 (green colored cord).

Note 2. For removing #908 , draw it out after bringing #T222 (brush) up to the position of the notch on the #905.

6) CdS cells
Unsolder the printed wiring plate.
To remove the CdS cells, take them out by the flange of the sealed case, using the end of a screw driver.

## § 4. MEASUREMENT OF EACH PART OF METER

1) CdS cells

Disconnect all the wirings except for the CdS cells from the printed wiring plate. Take measurement of the parallel-connected resistance of the CdS cells. If the measuring result is not within the Standard §1.A - 1, replace one or two of the cells.

For measurement, use the standard lens 50mm/1.4 (J18011).

Note: The above measurement should not be affected by the brightness of the surroundings.

2) Variable resistor

Connect the ends of #T619 and #T621 to the tester to measure the resistance.

Replace the resistor which is remarkably out of the standard.

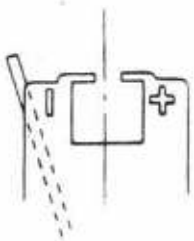
For the measurement, the slack of the shutter gear is to be adjusted to a minimum or to be brought to either side.

Use the standard lens 50mm/1.4 (J18011) for the measurement.

3) Meter

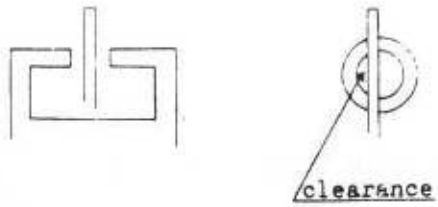
3) - 1 Position of the zero point

The pointer needle should move beyond the negative (-) mark of the bracket.



3) - 2 Displacement of the pointer needle

When the pointer needle in the finder is brought to the center, the top needle should have clearance on either side in the index ring (See Fig.).




4) Fixed resistor

Measure the resistance of each fixed resistor, using the tester.

## § 5. ASSEMBLING OF THE EXPOSURE METER

1) Variable resistor

Reverse the disassembling procedures mentioned in § 3 - 5), that is, fit #T203,#T204 and #T205 to #T201. Then, pass the green cord (#T621) through the hole in the front plate. Putting #213 into #214, gear up #209-1 with #229.

Note: Adjust the slack on the shutter dial by means of #227. At the same time, assure the short-circuit between the positions EV-2 and EV-3, with a clearance made at either end of the resistor against both the stoppers at B and 1/1000 sec.

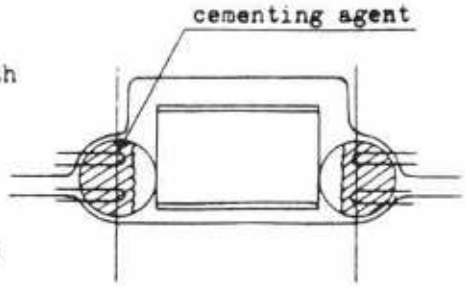
2) Meter

Set the mirror box in place, taking care of the pointer needle and the index.

Note: Viewing into the finder, fasten #T815 tightly, so that the index frame becomes parallel to the viewfield frame.

3) CdS cells

Put the CdS cells into #T359-1, with the side not coated with cementing agent faced inside, and at the same time attach the two lead wires vertical at their base, with lacquer.




4) Printed wiring plate

Do not fasten #T846 too firmly.

## § 6. ADJUSTMENT OF THE EXPOSURE METER

In principle, the exposure meter is to be adjusted by means of the fixed resistors $R_1$ (T616), $R_2$ (T626) and $R_G$ (T623), and not by means of adjustment of the filter on the CdS or that of the sensitivity of the meter. However, if need arises, the filter #132 for the Photomic-T can be used.

Replacement and readjustment are also carried out in the following way:

First, make temporary wiring.

It will be convenient to begin with

$R_1$ = 50Ω, $R_2$ = — = KΩ and $R_G$ = 3kΩ, although any of $R_1$ and of $R_2$ within the range (see p. ) can be taken.

1) Facing the meter toward the brightness of EV9, adjust the $R_G$ until the pointer needle comes to the center.

2) Facing the meter toward the brightness EV15, observe the accuracy. If the indication remains within ± 1/2 step (in terms of the aperture of the lens), leave it. If the needle swings too much, increase $R_1$. If the swing is not sufficient, decrease $R_1$. However, it is desirable that $R_1$ be as large as possible within the range of 1/2 step.

3) Facing the meter toward the brightness EV4, observe the accuracy. If the indication is within ± 1/2 step, leave it. Too large swing needs the increase of $R_1$ and conversely, too little swing requires the reduction of $R_1$. It is desirable that the swing be as large as possible within the range of ± 1/2 step.

Note: In adjustment, take care to prevent the brightness of the surroundings from affecting the CdS.